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ABSTRACT

This report is a result of a survey that was conducted to facilitate an assessment of current needs for bilingual education in the United States. It details the procedures used in conducting a count of the number of limited English-speaking ability (LESA) students and adults in the U. S. The introductory section summarizes the criteria used for classifying children as LESA and describes the data collection, weighting procedures, and population estimates. Volume 1 summarizes the procedures of the count, giving the background and purpose of the report, and discusses the instrumentation, data collection procedures, data analysis plans, and the results of the count. Included are copies of the questionnaires used in the survey as well as population tables. Volume 2 gives more technical descriptions of the sample design, instrumentation, and data collection procedures. The material includes an explanation of methodology and supporting statistical information used in its development, as well as statistical results from the data collection. Background legislation and methodological procedures are appended. (PJM)

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CHILDREN'S ENGLISH AND SERVICES STUDY

FINAL REPORT

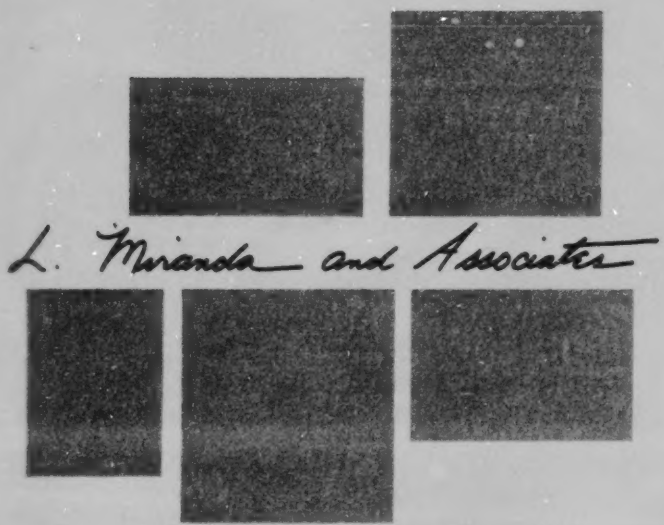
EXECUTIVE SUMMARY

VOLUME I

COUNTS ON NON-ENGLISH BACKGROUND AND LIMITED ENGLISH SPEAKING ABILITY CHILDREN

VOLUME II

TECHNICAL DESCRIPTION
APPENDICES



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FOREWORD

The report of the Children's English and Services Study (CESS) is presented in two volumes preceded by an Executive Summary. The two volumes contain detailed information describing methodologies, procedures and statistical findings.

The two volumes are as follows:

- Volume I - Report on the Counts of Non-English Language Background and Limited English Speaking Ability Children, Children's English and Services Study.
- Volume II - Technical Descriptions. This volume provides data on the sample design, instrumentation, data collection, and data analysis. Appendices will include working papers and tables of frequency counts describing the survey respondents.

Data Documentation of Files and Computer Software are included in a separate volume.

In addition, copies of interim reports have been furnished to the Project Officer of the National Institute of Education. For example, each of the Reviewer Group meetings and the field tests and final report of the Language Measurement and Assessment Inventory are described in separate reports.

L. Miranda and Associates, Inc.
000 3

The sample of homes chosen included those which fell into the category of Non-English Language Background (NELB). The eligible homes and selected children constituted a special purpose sample for language minorities, perhaps the first such sample in a national study of this sort.

It is significant to note that this study concerning bilingual education was carried out with major participation by members of language minority groups in the United States. As a broadly based, nationwide study there were minority individuals involved at all levels. Many of the numerous individuals who played significant technical roles are: Puerto Ricans, Mexican Americans, Cubans, Filipinos, Chinese and many others.

The prime contractor for the National Institute of Education was L. Miranda and Associates, Inc., a Hispanic, woman-owned, research and consulting firm. Its president is a Puerto Rican woman. Resource Development Institute, a major subcontractor, is a minority firm whose president is a member of the Mexican-American community of Texas. Westat, the other major subcontractor, had a Project Director who is also a member of a language minority group.

The Reviewers Group, an advisory board representing state educational agencies, and the Committee on Educational Information Services (CEIS) of the Council of Chief State School Officers, included experts in bilingual education and specialists in the design of data collection systems as well as many of the other areas which this complex study encompassed.

Thus, the CESS represents an important study for the nation's bilingual education program, with many key roles being played by members of the language minority population. Indeed, the CESS is a rare or perhaps unique undertaking in that it was a study of language minority groups

conducted largely by technically expert persons falling within the same category.

Special acknowledgements for the study are merited for many individuals. Appendices A and B list the members of the Reviewers Group, the study staff, and consultants who played significant roles.

The Project Officer for the National Institute of Education was Dr. J. Michael O'Malley and the coordinator for the National Center for Education Statistics was Mr. Leslie Silverman. Both of these HEW officials were ably assisted by staff personnel.

The Project Director for the study and head of the prime contractor, L. Miranda and Associates, Inc. was Ms. Lourdes Miranda. Resource Development Institute's Project Director was Mr. Roger Brune and Westat's Project Director was Mr. Rafael Nieves. Dr. Ty Hartwell served on a subcontract with the Research Triangle Institute. Each of these individuals was supported by staff members of the organizations they represented.

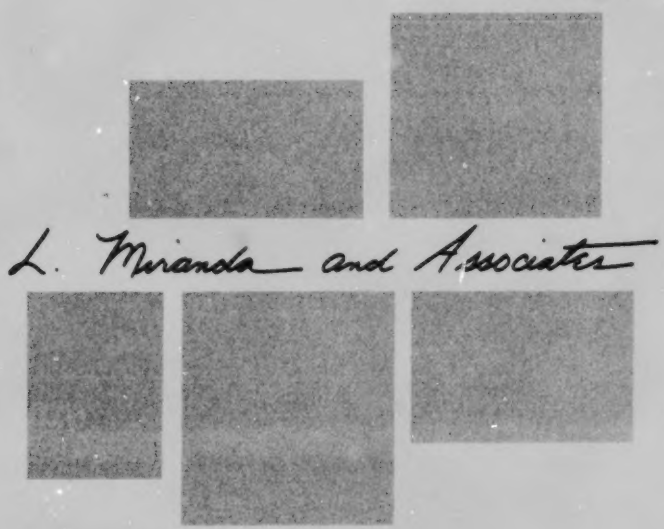
One cannot acknowledge adequately the children who participated in the field tests and the national study, their parents and the teachers and staff of their schools. Also, tests and other instruments could only be developed with great cooperation from state and local educators and those who administered the tests in the field trials in California, Texas, Illinois, Massachusetts, Iowa and Florida.

The end-products of the CESS are important, and it is especially significant to recognize that they were made possible only as a result of cooperative assistance from hundreds of persons.

Although LM&A, as a prime contractor, is responsible for all of the work presented in this report, it should be stressed that this work would not have been possible without the specialized expertise provided by WESTAT and RDI. WESTAT had the responsibility for designing the sample, monitoring the sampling process, deriving the formulae for calculations based on sampling considerations and interpreting and reporting all of the above. RDI was responsible for coding, data entry, programming, data analysis, and interpretation and reporting of analytic findings. Both of these firms contributed greatly, not only to the on-going project work but also to the preparation of this report.

CHILDREN'S ENGLISH AND SERVICES STUDY

EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

CHILDREN'S ENGLISH AND SERVICES STUDY

February, 1979

Submitted by

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L. Miranda and Associates, Inc.

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SUMMARY REPORT

Children's English and Services Study

1. Introduction and Legislative Authority

In order to assess current needs for bilingual education in the United States, Congress issued in 1976 three specific mandates to amend the Bilingual Education Act, ESEA Title VII.

Section 742 of the Bilingual Education Act, as amended by Section 105(a) (1) (20 U.S.C. 880b-10), mandated that:

(a) The National Center for Education Statistics count the number school-age children and adults "with limited English-speaking ability" (LESA) in each State and report the findings to the Congress (20 U.S.C. 880b-10);

(b) The Commissioner of Education determine the extent to which the educational needs of limited English speaking children are being met by Federal, State, and local efforts (20 U.S.C. 880b-10);

(c) The National Institute of Education (NIE) and the Office of Education (OE) jointly conduct a variety of studies including identification of the basic educational needs of students of limited-English-speaking ability. By agreement with the Office of Education, NIE will carry out this portion of the mandate (20 U.S.C. 880b-12,13).

These sections reflect the concerns which the Congress has expressed because of the lack of hard data that would show the extent of educational needs of children and adults with limited English-speaking ability.

The Children's English and Services Study (CESS) is one of the studies initiated by the National Institute of Education to respond to this mandate. It involved a household and school survey of a nationally representative sample of school-age children from homes in which a non-English language is spoken. The household survey was conducted to identify the home language(s) and other characteristics of the household members. The children's English language proficiency was tested in the home. The school survey sought data on instructional and support services provided for those children.

The study is part of a needs assessment included in the Bilingual Education Act. The results of the study are intended for use by Congress in its deliberations for updating or revising the present Act. Additionally, HEW will use the results for planning other activities in bilingual education.

The proposal submitted by L. Miranda and Associates, Inc., as prime contractor and Resource Development Institute, Inc., (as subcontractor) in response to the statement of work, reflected a clear understanding of survey research procedures, language measurement and assessment and the collection of home and school data on students of non-English backgrcund. In addition, a national sampling technique and a conceptual approach to the overall statistical treatment of the data base were designed so as to provide HEW and the Congress with

needed data. WESTAT, Inc., Opinion Research Corporation, and Research Triangle Institute also participated in the consortium of contractors who conducted the study.

2. Project Reviewers

Recognizing the need for involving persons from the states knowledgeable in bilingual education, Chief State School Officers were requested to designate representatives from the bilingual education programs in the U.S. to serve on a technical and advisory review group. This constitutes the Reviewers Group which advises both the Consortium and the Government representatives on the CESS. The names of all the Reviewers involved in the development of test and survey instruments appear in Volume I of the final report.

The role of the Reviewers Group has been characterized by its advisory capacity during four conferences held to discuss the development of survey instruments, techniques for field data collection, operational definitions and assessment of persons of limited English-speaking ability, and overall survey planning and recommendations (e.g.: test item format and content, scoring criteria, scoring procedures, and validity and reliability of instruments).

3. Criteria for Classifying Children as LESA

One of the major tasks of the Children's English and Services Study (CESS) was to develop tests to determine objectively whether a child should be classified as Limited English Speaking Ability (LESA).

In the absence of acceptable tests of English, completely new tests were developed for each age level, 5 through 14, by L. Miranda and Associates. The ten tests are known as the Language Measurement and Assessment Inventory (LM&AI). Reading , writing, speaking and understanding skills are individually tested in a 30 minute session, except that the five year old level does not have a written component.

Each test is criterion-referenced, reflecting the minimum language skills needed by a student to function in an English-speaking classroom at the appropriate age level. The tests were developed cooperatively by subject matter and test specialists, school psychologists, linguists and psychometricians, including the individuals who were members of the Reviewer's Group.

The tests underwent three successive field tests and a pilot test.

The operational definition of a Limited English Speaking Ability (LESA) child is one who scores below the critical score on the appropriate age level LM&AI. These critical scores are based on empirical data obtained during an extensive field test, using a discriminant function analysis technique to maximize the accuracy of predicting LESA from non-LESA.

4. Sample Design

The Children's English and Services Study concentrated on providing estimates of the number of children with limited English-speaking ability and of the educational needs of these children for all languages combined, and separately for Spanish-speaking persons. The information is representative of the total U.S., and of California, Texas, and New York.

Within each of these major strata the counties and independent cities were stratified by percent of their population who have mother tongues other than English (separately for Spanish and all other) and by size. Strata boundaries were chosen so as to approximately equalize the number of non-English mother tongue persons in each. A sample was allocated to the four major strata so as to provide "useful" estimates of the number of LESA children in the Spanish category for all three of the identified states and for the other-language category in California and New York.

The allocation of the sample between counties and area segments within counties were made so as to approximately optimize the design when both cost and sampling error were considered. Screening was conducted at two levels. At the first level, households that did meet the definitions of the study were screened out. At the second level, children with limited English-speaking ability were identified and all of them were tested, when possible. A fraction of others were tested to achieve the targeted balance between LESA children and all other children from qualifying households.

Data by county were extracted from the Census summary tapes and

for each county a record was created which included the following data items (in addition to identification):

- o total population
- o total Spanish mother tongue
- o percent Spanish mother tongue
- o total other non-English mother tongue
- o total non-English mother tongue
- o percent non-English mother tongue

The data on mother tongue were taken from either the Fourth or Fifth Count Census tapes, and from a special tape prepared for the Survey of Teacher's Language Skills. The combination of this special tape and the Census tape was used for determining the measure of size where Spanish, Oriental and American Indian language groups constitute large minorities and where school districts were large (predominantly in SMSAs, Standard Metropolitan Statistical Areas).

5. Data Collection

This section describes the procedures used for conducting the field portion of the study. There were 11 regions established, each headed by a supervisor trained by the appropriate Consortium contractor. The 11 regions were covered by a staff consisting of 150 interviewers, 10 troubleshooters and 45 test administrators.

The listing, screening and household interviewing in this study were done in a one-step operation whenever possible.

Since one of the criteria for the study was to identify households of non-English language backgrounds, questionnaires were translated into Spanish. Interpreters were used in households where other languages were spoken.

As part of the household interview, a parental consent form had to be obtained from a parent or guardian for each child selected for testing. The signed parental consent form made it possible to obtain educational information concerning services provided by the school in which the child was enrolled. The pupil survey questionnaire was then mailed along with a signed copy of the parental consent form to the school to obtain school information.

An important phase of the study involved individual testing of selected children age 5 to 14, to determine their English language proficiency. The testing was done in the child's home.

The pupil survey was the final phase of the study. This phase was dependent upon the cooperation of the educational systems in the

22 sampled states. Because this phase could not be initiated until near the completion of the household survey, the schedule of the pupil survey in some parts of the country almost coincided with the closing of schools. Obtaining the information proved to be a very difficult task.

Thus, within the sampling plan, data were collected by means of the Listing, Screening, and Household Questionnaires; testing of eligible children with the appropriate Language Measurement, and Assessment Inventory; and collecting school data with the Pupil Survey.

6. Weighting and Variance Procedures

In producing national estimates of Limited English Speaking Ability children, sample weights were derived on the basis of the sample design and yield. Six weight adjustments were necessary.

Three of the six weight adjustments were based on non-response to interview instruments used in the LESA count phase of the study. Each instrument, the CESS Household Screener, the Household Questionnaire, and the LM&AI test, represented a different stage of interviewing. At each stage two determinations were important to the weighting procedure: (1) whether the responding household or child was eligible or ineligible to participate in the study and (2) whether the instrument was completed or not completed by the respondent.

The Household Screener response rates for the whole U.S. and by sub-population (California, Texas, New York, and the remainder of the U.S.) were generally the lowest of the three instruments. Completed cases were defined as those in which the Screener was completed for an eligible household or in which the language and children screening questions were completed for an ineligible household. The Screener response rate for the entire sample was 76.19%. The response rates for California, Texas, New York, and the Remainder of the U.S. were 78.08%, 82.32%, 72.63%, and 75.70% respectively. The high response rates indicate that almost all of the households identified as eligible households were successfully interviewed.

The national Household Questionnaire response rate was 93.75%. The response rates for California, Texas, New York, and the Remainder

of the U.S. were 90.43%, 94.89%, 93.55%, and 94.61% respectively.

To determine the response rates on the LM&AI test, the number of completed tests were compared to the number of children eligible for testing, excluding handicapped and 15 to 18 year old children. The response rate for the LM&AI was 84.58% for the entire sample. For California, Texas, New York, and the Remainder of the U.S. the response rates were 73.99%, 86.47%, 86.11%, and 87.58% respectively.

Six weight adjustments were made to derive estimates of totals and proportions. A basic sampling weight was derived for each segment in the sample from the probability of selection of each segment according to the sample design. The weighted NELB and LESA counts are tabulations of these final weights.

NIE had requested NELB and LESA counts for 26 groups. The counts were limited to 5 to 14 year old children, as specified by the study design. Language proficiency of 15 to 18 year old children was not measured.

7. Population Estimates

Table 1 presents the NELB and LESA counts. For the whole U.S., the estimated number of 5 to 14 year old NELB children is 3,812,000. The national estimate of 5 to 14 year old LESA children is 3,409,000. The weighted proportion of LESA out of NELB 5 to 14 year old children is 63.2% with a confidence interval range of 55.49% to 70.90%.

The Coefficient of Variation (CV) for the NELB counts are difficult to interpret and are negatively biased to an unknown extent. This results from the fact that they are derived from CESS data but are then applied to counts which have been adjusted to Survey of Income and Education (SIE) counts.* The situation could only by remedied if CV's for NELB were available on SIE data. Since these are not available, CV's are not listed.

In addition, since LESA count CV's would be derived from NELB count CV's, the former cannot be estimated either. The CV's for LESA proportions, however, do not suffer from the same problems.

*It also results from aging of the counts, which introduces an additional unknown error term.

TABLE 1

NELB and LESA Counts with LESA Proportions

Category	NELB Count	LESA Count	LESA Proportion			
			%	CV	Minimum	Maximum
Whole U.S.	3,812,000	2,410,000	63.2	6.10	55.49	70.90
Subpopulation						
California	855,000	594,000	69.5	8.35	57.39	81.11
Texas	630,000	438,000	69.5	8.48	57.80	81.42
New York	608,000	458,000	76.9	10.68	60.45	93.28
Remainder of U.S.	1,718,000	908,000	52.9	11.44	40.77	64.96
Age						
5-6 year olds	722,000	484,000	67.0	6.81	57.86	76.11
7-8 year olds	780,000	534,000	68.4	8.62	56.61	80.20
9-11 year olds	1,099,000	652,000	59.3	10.63	46.68	71.90
12-14 year olds	1,210,000	740,000	61.1	6.71	52.98	69.33
Language						
Spanish	2,390,000	1,744,000	73.0	3.73	67.53	78.41
Other non-English	1,422,000	665,000	46.8	12.27	35.30	58.24
Spanish						
5-6 year olds	467,000	352,000	75.3	5.57	66.93	83.73
7-8 year olds	486,000	390,000	80.2	4.15	73.55	86.85
9-11 year olds	690,000	462,000	67.0	7.54	56.86	77.05
12-14 year olds	747,000	540,000	72.4	5.96	63.73	80.98
Other non-English						
5-6 year olds	255,000	132,000	51.7	17.27	33.87	69.60
7-8 year olds	294,000	144,000	48.9	22.01	27.38	70.46
9-11 year olds	409,000	190,000	46.4	20.36	27.48	65.24
12-14 year olds	463,000	199,000	43.0	13.65	31.29	54.78
Spanish						
California	654,000	502,000	76.7	3.47	71.41	82.04
Texas	602,000	438,000	72.8	5.11	63.34	80.20
New York	364,000	316,000	86.9	4.64	78.78	94.92
Remainder of U.S.	770,000	488,000	63.4	11.13	49.28	77.49
Other non-English						
California	201,000	93,000	46.0	36.85	12.10	79.91
New York	245,000	152,000	62.0	24.08	32.15	91.83
Remainder of U.S.*	977,000	421,000	43.1	14.90	30.26	55.95

*For other non-English language by subpopulation, Texas was included with the Remainder of the U.S.

8. Conclusion

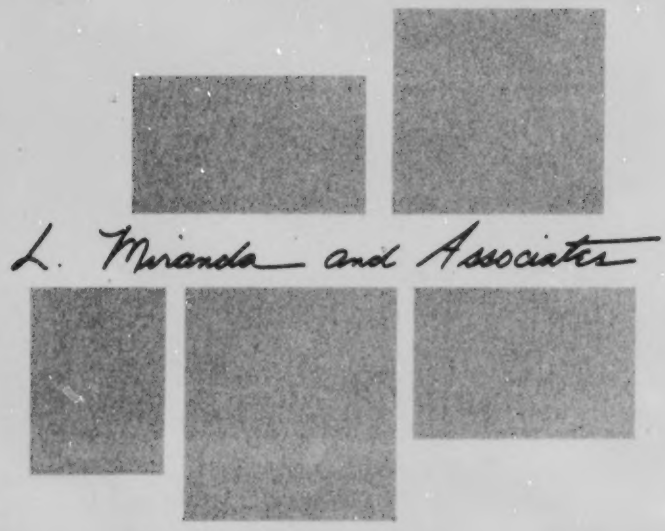
Congress presented three mandates to the Department of Health, Education and Welfare to collect data on bilingual education. The Children's English and Services Study, conducted under the aegis of National Institute of Education, provides the requested date in terms of population estimates of Non-English Language Background (NEL3) and Limited English Speaking Ability (LESA) persons. The Study was a cooperative venture involving a Consortium of Contractors, a national Review Group of Advisors, and major participation by the staff of National Institute of Education and National Center for Education Statistics.

Detailed reports and copies of instruments are available in three volumes at the National Institute of Education.

CHILDREN'S ENGLISH AND SERVICES STUDY

VOLUME I

COUNTS ON NON-ENGLISH BACKGROUND AND LIMITED ENGLISH SPEAKING ABILITY CHILDREN



CHILDREN'S ENGLISH AND SERVICES STUDY

VOLUME I

COUNTS ON NON-ENGLISH BACKGROUND AND LIMITED ENGLISH SPEAKING ABILITY CHILDREN

FEBRUARY 1979

SUBMITTED TO:

National Institute of Education
Department of Health, Education and Welfare

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VOLUME I

FINAL REPORT - CHILDREN'S ENGLISH AND SERVICES STUDY COUNTS ON NON-ENGLISH BACKGROUND AND LIMITED ENGLISH SPEAKING ABILITY CHILDREN

I. INTRODUCTION

For many years, children who came from long-standing communities which retained a language other than English as a daily means of communication, native-born Americans, as well as more recent immigrants, were not fully participating in the educational programs offered throughout school systems in the United States. Their limited proficiency in the English language effectively denied them equal access to the educational system and to the development of their full intellectual and academic potential.

In recent decades both the Federal and State governments have attempted to improve the educational opportunities of students whose home language is one other than English. The national Elementary and Secondary Education Act (ESEA) provided assistance through LEAs for limited English speaking children in Title VII, the Bilingual Education Act.

One of the persistent problems faced by the Department of Health, Education and Welfare has been to obtain accurate identification of linguistic minorities and estimates of the number of school children involved, their location, and the service needs of these children. No systematically collected information was available to give Congress the needed data on which to provide funds in support of ESEA, Title VII.

In order to assess current needs for bilingual education in the United States, Congress issued in 1974 three specific mandates to amend the Bilingual Education Act, ESEA Title VII.

Section 742 of the Bilingual Education Act, as amended by Section 105(a)(1) of the P.L. 93-380, the Education Amendments of 1974 (20 U.S.C. 880b-12), mandates:

> *The Commissioner (of Education) and the Director (of the National Institute of Education) shall undertake studies to determine the basic educational needs of children of limited English-speaking ability.*

The Children's English and Services Study is one of a number of studies the National Institute of Education is initiating to respond to this mandate.

Section 731(c)(1) of the Bilingual Education Act, Section 105(a)(1) of the Education Amendments of 1974 (20 U.S.C. 880b-10), mandates a report on the condition of bilingual education in the Nation, including:

> *A national assessment of the educational needs of children and other persons with limited English-speaking ability and of the extent to which such needs are being met from Federal, State and local efforts, including (A) not later than July 1, 1977, the results of a survey of the number of such children and persons in the States, and (B) a plan, including cost estimates,...for extending programs of bilingual education and bilingual vocational and adult education programs to all such preschool and elementary school children and other persons of limited English-speaking ability, including a phased plan for the training of the necessary teachers and other educational personnel necessary for such purpose;...(and) an assessment of the number of teachers and other educational personnel needed to carry out programs of bilingual education under this title and those carried out under other programs for persons of limited English-speaking ability...*

Section 501(b)(4) of P.L. 93-380 provides as follows:

> *The National Center for Education Statistics shall conduct the survey required by Section 731(c)(1)(A) of Title VII of the Elementary and Secondary Education Act.*

These mandates reflect Congressional concerns over the lack of data that would show the extent of educational needs of children and adults with limited English-speaking ability (LESA) and how those needs are being met.

II. BACKGROUND AND PURPOSE OF THE REPORT

The Children's English and Services Study (CESS) is one of the studies initiated by the National Institute of Education responding to the Congressional mandates. The current report is concerned with the mandate to estimate the number and location of LESA children.

The CESS not only made an estimate of LESA possible, but it also involved a household and school survey of a nationally representative sample of school age children from homes in which a non-English language is spoken. The household survey was conducted to identify the home language(s) and other characteristics of the household members. The Language Measurement and Assessment Inventory, administered in the home, was a necessary step toward arriving at an estimate of LESAs. The school survey sought data on instructional and support services provided to those children.

The proposal submitted in 1977 by L. Miranda and Associates, Inc., as a prime contractor and Resource Development Institute, Inc., as subcontractor, in response to the statement of work, delineated steps in planning for survey research procedures, language measurement and assessment, and the collection of home and school data on students of non-English background. In addition, a national sampling technique and conceptual approach to the overall statistical treatment of the data base were designed so as to provide HEW and the Congress with needed data. Westat, Inc., Opinion Research Corporation, and Research Triangle Institute also participated in the consortium of contractors who conducted the study.

The purpose of this report is to transmit to the National Institute of Education the estimates of the number of non-English Language Background (NELB) individuals and the number of Limited English Speaking Ability (LESA)

students, ages 5-14. Within each of these categories data are provided on the three states with the largest groups of NELB and LESA children.

In addition, the major steps taken in the conduct of the study are described. The project evolved into a complex enterprise. The solutions were made possible because of the involvement of a consortium of contractors, a national advisory group, consultants, scores of individuals in state and local educational agencies, and hundreds of families and children who participated in the development of tests and instruments and in the national study itself.

The CESS is one part of a needs assessment included in the Bilingual Education Act. The results of the study are intended for use by the Congress in its deliberations for updating or revising of the present Act. Additionally, HEW will use the results for planning other activities in bilingual education.

III. PROJECT REVIEWERS

Recognizing the need for involving persons knowledgeable in bilingual education, the Chief State School Officers were requested to designate representatives from their bilingual education programs to serve on a technical and advisory review group. The individuals designated constitute the Reviewers Group which advised both the Consortium and the Government representatives on the CESS. The names and affiliations of all the Reviewers involved in the development of test and survey instruments may be seen in Appendix A of this report.

There were four official meetings of the Reviewers Group, as follows:

A. Arlington, Virginia - March 7 to 9, 1977

B. Columbia, Maryland - March 29 to 30, 1977

C. Washington, D.C. - April 18, 1977

D. Washington, D.C. - October 26 to 27, 1977

Because there was a bilingual education meeting in New Orleans at an especially appropriate time, an unofficial meeting of available Reviewers was held there on April 7 to 8, 1977.

Additionally, members of the Reviewers Group provided numerous instances of advisory and consultation services in areas of specialization.

The value of the services of these individuals cannot be overestimated. All brought expertise to the bilingual education area. In addition, the individuals provided advice in such areas as test development, questionnaire preparation, linguistics, grammar, field data collection, statistics and psychometrics, curriculum, and knowledge of the operations of the American elementary and secondary school.

Reviewers were also of great value in making arrangements for field testing of instruments (Language Measurement and Assessment Inventory). They provided access and helped on specific physical arrangements in several school districts.

In addition to the Reviewers, there were many consultants engaged for special tasks. For example, in designing and reviewing the proposed national sample there were outside experts asked to review the concepts and plans. Psychometricians and linguists were asked to review the English language proficiency tests at several stages of development. (See Appendix B.)

IV. INSTRUMENTATION

Four instruments were used to gather data on the national sample. The instruments and their purposes are stated below. Copies of the actual survey instruments have been deposited with the National Institute of Education, as well as a separate report on the development of the Language Measurement and Assessment Inventory.

SCREENING QUESTIONNAIRE - The Screening Questionnaire (SQ) was administered to any adult member of the sample household. The questionnaire served to identify those households with one or more children between the ages of 5 and 18 years, to identify if a language other than English was spoken in the household, and to identify the language. The Screening Questionnaire required approximately 5 to 10 minutes to administer.

A non-English language background (NELB) household is one in which a language other than English is spoken usually or often. In this study, an eligible household is one where a language other than English is usually or often spoken and where there is at least one child aged 5 through 18. An eligible child lives in an eligible household and is in the target age range. Up to two children were selected systematically in the 5-14 age range and one in the 15-18 range from among those eligible.

The Screening Questionnaire was discontinued for ineligible households. The respondent in eligible households was asked additional questions to determine, for every member of the household, his or her sex, date of birth, individual language, origin or descent, and country of birth.

HOUSEHOLD QUESTIONNAIRE - When the Screening Questionnaire indicated that a household was eligible for the study and the selected child or children were identified, the interviewer proceeded to interview the head of the household, entering answers on the Household Questionnaire (HQ). The Household Questionnaire is a census-type questionnaire composed of items from the Survey of Income and Education (SIE) and other items recommended by the Reviewers Group. This questionnaire provided data on which to compile specific information about the selected child or children and family.

Information requested of the respondent included household income and, for selected children, school attended or reason for not being in school, highest grade completed, school exposure for language training only, school attended outside the U.S. and language of instruction, rating by respondent of child's English and non-English language proficiency (speak, understand, read, write), and language usually spoken to siblings and to best friends. After completion of the Household Questionnaire, the interviewer presented the Parental Consent Form for signature so that information from the school could be requested (see Pupil Survey section which follows).

LANGUAGE MEASUREMENT AND ASSESSMENT INVENTORY - The Language Measurement and Assessment Inventory (LM&AI) was administered to selected children aged 5-14 years. The LM&AI is a comprehensive, criterion-referenced test of reading, writing, speaking and understanding designed to assess a child's mastery of English language skills. There are ten separate age level forms, one for each age from 5 to 14. The English language content objectives on the test are emphasized in school systems across the U.S. and were specified by the Project Reviewers for this study. For each age form, the content objectives reflect the minimum level of competence in academic English language skills expected of English-speaking children in U.S. school systems. The objectives are graduated in difficulty and sophistication across the age forms.

The number and type of items to assess each content objective were specified by the Reviewers. Items development by the contractor to assess the content objectives were retained in the final form of the test only if they met three criteria: (1) they were judged by selected reviewers and

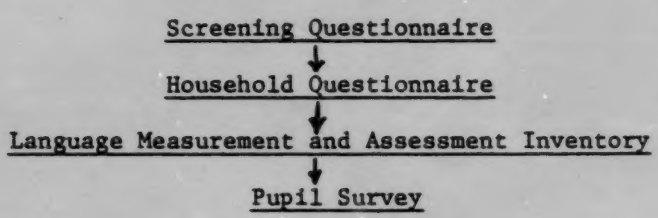
by English language arts specialists to match the objective they were designed to assess; (2) they discriminated statistically between children designated by field test school personnel as native English speakers (NES) within the normal range of ability; and (3) they correlated with other similar items in the test. Field tests were performed for three successive revisions of the instrument in Boston, Massachusetts; Los Angeles and San Francisco, California; Chicago, Illinois; McAllen, Dallas and Lubbock, Texas; Key West and Orlando, Florida; and Des Moines, Iowa. Language groups with which the field tests were performed included Spanish, Japanese, Chinese, Vietnamese, Greek, Italian, Polish and Arabic as well as native English speakers. In field tests, the items were demonstrated to be within the experiential and knowledge background of an NES child of a given age in the normal range of ability. LM&AI was not designed for or administered to children aged 15 to 18 in this study.

Using extensive field experiences and statistical analyses, a critical score was separately established for each of the ten age forms. In the CESS, a child who scored below the critical score was classified as Limited English Speaking Ability (LESA) and anyone who scored at or above the critical score was classified as non-LESA. Thus, the classification of what is a LESA child is defined operationally as a child who, when tested on the appropriate LM&AI age form, fell below a given score. These critical scores were established through discriminant function analysis of data obtained in field tests.

By use of the LM&AI it was possible to identify, and thereby count, children who were LESA. Various estimates of LESA children found in this report are based on data derived from the use of the LM&AI.

PUPIL SURVEY - The Pupil Survey (PS) requests information in four categories for selected, enrolled children: the students' grade placement and grade repetition, the students' instructional program, special services and assessment, and sources of funding for the students' program or service. The PS was mailed to schools and was intended to be completed by a school administrator or the children's teacher. The PS was mailed only when the parent had signed a release form. Questions asked about the instructional program focused on time of instruction, staff qualifications, and grouping practices for English language arts or English as a second language, non-English language arts, non-English language content area instruction, and instruction in the culture of the child's non-English language. For children in the aggregate, the results will illustrate areas of student need and patterns of services received.

The sequence for the utilization of the four instruments in the CESS was as follows:



V. SAMPLE DESIGN

The sample design of the Children's English and Services Study concentrated on providing estimates of numbers of children with limited English-speaking ability and on the educational needs of these children. The data are representative of the total U.S., and separately for California, Texas and New York.

To achieve this goal, the counties and independent cities of the United States (approximately 3,000 of them) were stratified into four groups as follows:

- o Those in California
- o Those in Texas
- o Those in New York
- o All Other

Within each of these major strata the counties and independent cities (referred to as "counties") were stratified by percentage of their population who have mother tongues other than English (separately for Spanish and all other) and also by size. Strata boundaries were chosen so as to approximately equalize the number of non-English mother tongue persons in each. A sample was allocated to the four major strata so as to provide the required precision for the national estimates and to provide useful estimates of the identified states, as well as the other-language category in California and New York.

The allocation of the sample between counties and area segments within counties was made so as to optimize the design when both cost and sampling error were considered. Screening was conducted at two levels. At the first level, using the SQ, households were screened "out" that did not meet the definitions of the study. At the second level, children from non-English language backgrounds were selected from all eligible children 5-14 (up to two per household selected) and from all eligible children 15-18 (one child per household selected).

The sample was designed to contain 75 primary sampling units (PSUs). Typically, a PSU was a county although some large cities served as PSUs.

The design called for the identification of about 2,000 non-English Language Background (NELB) households in those PSU's. The 75 PSU's were further subdivided into 591 area segments.

A coefficient of variation of 15 percent on the national estimate of number of limited English-speaking ability (LESA) children was targeted. The final definition of LESA children had not been established at the time the sample was designed. For design purposes it was estimated that 20 percent of the children in NELB households would be LESA children.

For stratification purposes, the remote counties in Alaska were eliminated from the universe because of the difficulty (and cost) of surveying them. All other counties in the survey universe were stratified by their estimated proportion of NELB households. The following procedures were followed in forming the strata:

- Census data on mother tongue from the Fourth Count Census tapes form 1970 were tabulated for each State and the District of Columbia. Fifth Count Census tapes to estimate the proportion of NELB households for enumerating districts and block groups, and because fewer mother tongues are reported on those tapes than in the Fourth Count, some of the mother tongues were aggregated with "all other." Specifically, French, Swedish, Russian, Hungarian and Portugese were collapsed into "all other" for purposes of estimating county measures of size.

- The number of persons with Spanish mother tongue was used as the "Spanish" measure of size.

- Techniques were used on the basis of the assumption that LESA children are more apt to be found where there are concentrations of non-English mother tongues.

Additionally, the 1972 Office for Civil Rights (OCR) tape on school enrollments

was used to adjust the Spanish measures of size for counties having 10,000 or more pupils.

Although the most important statistic to be obtained from the survey is an estimate of the number of LESA children, at the time of the sample design there was uncertainty concerning the specific definition of LESA children. For this reason, the expected number of NELB children ages 5-14 was used as the measure of size in allocating the sample to segments of housing units in the sampled counties.

Data for estimating the number of NELB children were available from the Survey of Income and Education (SIE) conducted by the U.S. Bureau of Census in 1976. At the onset of the CESS, it was estimated that there were about two million households with children in the age range of 5-14 where a non-English language was used as a usual or other household language. Because the definition of non-English language background in the CESS and SIE was the same, without stratification, one would expect about one household out of 35 nationally to be a NELB household with children in the age range of 5-14. If followed, this plan would require screening about 70,000 occupied housing units with 100 percent response to obtain a sample of 2,000 NELB housing units -- clearly an impossibility within the time and budgetary constraints.

Another key statistic is the average number of eligible children to be tested per household. The range used was 1.49 to 1.67. For planning purposes 1.5 was used to allow for some within-household nonresponse.

As a separate datum, the study used an estimate of 800,000 LESA children nationally, or approximately one for every two and one-half NELB households. Or stated differently, about one NELB child in five was

expected to be classified as a LESA child.

The initial plan was to sample 120 counties in the United States, distributed approximately as follows:

California	15
Texas	20
New York	15
Remainder of U.S.	70
Total Counties	120

About 650 segments were to be sampled in the selected 120 counties to obtain a coefficient of variation of 10 percent on the national estimate of the number of LESA children.

It was determined, however, that resources were inadequate to produce this level of precision. At the same time, it was desired to have a relatively large sample of NELB children to provide a sufficient number of analyses of various subsets of the universe. The targeted level of precision was changed to a coefficient of 15 percent on the national estimate of the number of LESA children and an expected 2,000 NELB children to be tested in the sample segments. To accomplish the revised objective, the number of sample counties was cut to 75 and the number of sample segments was cut to about 600. The distribution eventually used was:

California	12
Texas	10
New York	9
Remainder of U.S.	44
Total Counties	75

The following quality control procedures were established by L. Miranda and Associates for product review; the sample design was reviewed by several technical specialists, one of which belonged to a language minority group.

Their consensus was that the sample design was very well thought out and technically competent; a good to excellent sample would be drawn.

VI. DATA COLLECTION PROCEDURES

This section describes the procedures used for conducting the field portion of the study. There were 13 regions established, each headed by a supervisor trained by the appropriate Consortium contractor. The 13 regions were covered by a staff consisting of 196 interviewers, 10 troubleshooters and 73 test administrators, all trained especially for their tasks.

Field personnel were trained in advance for the tasks they were to perform. The training to administer the LM&AI tests involved contract personnel going to regional locations to train administrators. A video taped demonstration was included in the procedure so that uniformity of testing technique would be achieved. Furthermore, all personnel involved in the testing were provided with a full system of materials, including training and procedural manuals.

Supervisory personnel and field interviewers were trained for their tasks using home study, small group sessions, demonstrations, exercises, lectures, and role playing.

A system of quality control was established in the network of staff and field personnel. Control measures included on-site visits of personnel who were interviewing and testing. Observations by members of the contractors' staffs were made in many locations.

The listing, screening and household interviewing in this study were done in a one-step operation whenever possible. The Screening Questionnaire (SQ) was used to select eligible households from those listed. The Household Questionnaire (HQ) was administered only to

eligible households. Since one of the criteria for the study was to identify households in which a non-English language was used, both the SQ and HQ questionnaires had been translated into Spanish. Interpreters were used in households where other languages were spoken. In six other languages, small cards were printed with the needed information.

As part of the household interview, a parental consent form was obtained for each child selected for testing. The signed parental consent form made it possible to obtain educational information (the PS) concerning services provided by the school in which the child was enrolled. The Pupil Survey was then mailed along with a signed copy of the parental consent form to the school to obtain school information.

The LM&AI was administered in a call-back session by a person trained to administer the instrument. This instrument was administered to selected children aged 5 to 14. The testing was done in the child's home, in about 30 minutes time.

The Pupil Survey was the final phase of the study. This phase was dependent upon the cooperation of the educational systems in the 24 sampled states. Because this phase could not be initiated until near the completion of the household survey, the schedule of the Pupil Survey in some parts of the country, coincided with the closing of schools. Obtaining the information proved to be a very difficult task. Efforts continued long after the collection of required data to complete the count of LESA children given in this report.

The Pupil Survey required diversified communication with educational agencies in all sampled states. Depending on how they elected to manage the study in their states with LEA and school officials, obtaining cooperation and

finalizing the individual State options proved to be a time-consuming and multifaceted operation. Every effort was made to attain a full response from the schools, including follow-up mailings of survey forms.

Following the collection of field data the reduction phase of the study involved preparation of the information for entry, data entry, verification, and the addition of sample weights. This process included coding of items which had not been recoded and the converting of raw data into machine readable forms on magnetic tape. A verification system was employed to assure that data were accurately entered.

VII. DATA ANALYSIS PLAN

Upon completion of data entry and editing, a data tape of members of all eligible households, including eligible selected children, was available for use in completing data analysis tasks. These tasks included: (1) production of information concerning the data collection efforts (i.e., the sample yield), (2) scoring the LM&AI tests to be used as the criterion for identifying LESA children, (3) application of disposition codes showing the eligibility of each respondent to be in the study and whether or not the survey instruments and tests were completed, (4) calculation of final response rates, (5) calculation of non-response and subsampling sample weights, and (6) calculation of weighted NELB and LESA counts.

Analysis tasks pertaining to Pupil Survey responses do not relate to the first Congressional mandate concerning LESA counts and are therefore, not discussed.

The six data analysis tasks were accomplished as follows:

- The first step of analysis was to prepare summaries of the sample yield for completed Screening and Household Questionnaires for

all four sub-populations (California, Texas, New York, and the Remainder of the U.S.). Frequency counts were also produced for the numbers of eligible and selected children.

- The LM&AI tests consisted of ten separate instruments, one for each age group between 5 and 14 years of age. Computer programs were developed to score each test , record the total score, compare it to the appropriate LESA cut-off score per age level, and record a LESA or non-LESA code. There were 1909 tests scored and the data was added to the master tape.

- The CESS sample design necessitated six weight adjustments. Three of the adjustments were based on responses to questionnaires used in the LESA Count phase of the study. The instruments were the Screening Questionnaire, the Household Questionnaire and the LM&AI test. Each questionnaire represented a different stage of interviewing. At each stage, two determinations were important to the weighting procedure: (1) whether the responding household or child was eligible or ineligible to participate in the study and (2) whether the instrument was completed or not completed by the respondent. These two conditions were indicated by "disposition codes."

- Editors determined appropriate codes by reviewing the responses on each instrument and noting the comments provided by the interviewer. To facilitate editing, one set of disposition codes was used to represent the outcomes of the Screening Questionnaire and the Household Questionnaire. A second set of disposition codes was applied to the LM&AI test.

- Six weight adjustments were made to derive estimates of totals and proportions. A basic sampling weight was derived for each segment in the sample from the probability of selection of each segment according to the sample design. The weighted NELB and LESA counts are tabulations of these final weights.

- Non-response adjustments were made for the Screening Questionnaire and the Household Questionnaire. Sixteen non-response ratios were computed. A procedure was then followed for adjusting sub-sampling weights.

VIII. Results

The Screening Questionnaire response rates for the whole U.S. and by sub-population (California, Texas, New York and the Remainder of the U.S.) was 76.19%. Completed cases were defined as those in which the Screening Questionnaire was completed for an eligible household or in which the language and children elimination questions were completed for an ineligible household. The response rates for California, Texas, New York, and the remainder of the U.S. were 78.08%, 82.32%, 72.63% and 75.70% respectively.

The high response rates indicate that almost all of the households identified as eligible households were successfully interviewed.

The national Household Questionnaire response rate was 93.75%. The response rates for California, Texas, New York and the remainder of the U.S. were 90.43%, 94.89%, 93.55% and 94.61% respectively.

To determine the response rates on the LM&AI test, the number of completed tests were compared to the number of children eligible for testing, excluding handicapped and 15 to 18 year old children. The response rate for the LM&AI was 84.58% for the entire sample. For California, Texas, New York, and the remainder of the U.S. the response rates were 73.99%, 86.47%, 86.11% and 87.58% respectively.

After using the final scoring procedures, 1,360 of the 1,909 children

or 71.2% were classified as LESA as shown below in Table 1:

TABLE 1. Number of LESA at Each Age Level

Age Level	Score Distributions	
	% LESA	No. of LESA
5	71.0	125
6	70.9	151
7	72.9	151
8	82.1	165
9	68.7	134
10	82.6	152
11	55.7	102
12	72.9	129
13	68.0	119
14	66.7	132
All Ages	71.2%	1,360

The primary sets of counts of this part of the CESS are for Limited English Speaking Ability and for non-English Language Background individuals. There are 26 such counts. The LESA and NELB data were limited to children ages 5 through 14. The language proficiency of individuals 15 through 18 years of age was not tested, although data on these individuals are reported elsewhere.

Table 2 presents the NELB and LESA counts. For the whole U.S., the estimated number of 5 to 14 year old NELB children is 3,812,000. The national estimate of 5 to 14 year old LESA children is 2,409,000 at a 95 percent confidence level.

Table 3 provides more detail on the calculation of the unweighted and weighted NELB and LESA counts, LESA Proportions, and LESA Proportion CV's.

The function of the coefficient of variation can be better interpreted using the following definition:

> *An average or ratio or projected total derived from sample data is an estimate that is subject to sampling error. A common measure of the variation to be expected in repeated surveys (and, hence, an estimate of the sampling variability in the current survey) is the standard error. For most survey data, one would expect a projected sample total, mean or ratio to lie within one standard error of the "true", but unknown, value about two times out of three, and within two standard errors about 19 times out of 20. The coefficient of variation is simply the standard error of a total, mean or ratio divided by its respective total, mean or ratio. Thus, it is a measure of relative variation and is frequently multiplied by 100 to correct it to a percentage. For example, a coefficient of variation of five percent on an estimated total indicates that the chances are about two out of three that the estimated total is within five percent of the true population total.*
>
> *The relvariance is the square of the coefficient of variation.**

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* The Coefficient of Variation (CV) for the NELB and LESA counts are difficult to interpret and are negatively biased to an unknown extent. This results from the fact that they are derived from CESS data but are then applied to counts which have been adjusted to Survey of Income and Education (SIE) counts. The situation could only be remedied if CV's for NELB and LESA were available on SIE data. Since these are not available, CV's are not listed.

Table 2

NELB and LESA Counts

Category	NELB Count	LESA Count	LESA Proportion			
			%	CV	Minimum	Maximum
Whole U.S.	3,812,000	2,410,000	63.2	6.10	55.49	70.90
Subpopulation						
California	855,000	594,000	69.5	8.35	57.39	81.11
Texas	630,000	438,000	69.5	8.48	57.80	81.42
New York	608,000	458,000	76.9	10.68	60.45	93.28
Remainder of U.S.	1,718,000	908,000	52.9	11.44	40.77	64.96
Age						
5-6 year olds	722,000	484,000	67.0	6.81	57.86	76.11
7-8 year olds	780,000	534,000	68.4	8.62	56.61	80.20
9-11 year olds	1,099,000	652,000	59.3	10.63	46.68	71.90
12-14 year olds	1,210,000	740,000	61.1	6.71	52.98	69.33
Language						
Spanish	2,390,000	1,744,000	73.0	3.73	67.53	78.41
Other non-English	1,422,000	665,000	46.8	12.27	35.30	58.24
Spanish						
5-6 year olds	467,000	352,000	75.3	5.57	66.93	83.73
7-8 year olds	486,000	390,000	80.2	4.15	73.55	86.85
9-11 year olds	690,000	462,000	67.0	7.54	56.86	77.05
12-14 year olds	747,000	540,000	72.4	5.96	63.73	80.98
Other non-English						
5-6 year olds	255,000	132,000	51.7	17.27	33.87	69.60
7-8 year olds	294,000	144,000	48.9	22.01	27.38	70.46
9-11 year olds	409,000	190,000	46.4	20.36	27.48	65.24
12-14 year olds	463,000	199,000	43.0	13.65	31.29	54.78
Spanish						
California	654,000	502,000	76.7	3.47	71.41	82.04
Texas	602,000	438,000	72.8	5.11	63.34	80.20
New York	364,000	316,000	86.9	4.64	78.78	94.92
Remainder of U.S.	770,000	488,000	63.4	11.13	49.28	77.49
Other non-English						
California	201,000	93,000	46.0	36.85	12.10	79.91
New York	245,000	152,000	62.0	24.08	32.15	91.83
Remainder of U.S.*	977,000	421,000	43.1	14.90	30.26	55.95

*For other non-English language by subpopulation, Texas was included with the Remainder of the U.S.

Table 3.

Calculation of NELB and LESA Counts

Category	NELB Totals		LESA Totals		
	Unweighted	Weighted	Unweighted		Weighted
	N	N	N	%	N
Whole U.S.	1909	3,812,000	1360	71.2	2,409,000
Subpopulations					
California	310	855,000	233	75.2	594,000
Texas	460	630,000	324	70.4	438,000
New York	279	608,000	229	82.1	468,000
Remainder of U.S.	860	1,718,000	574	66.7	908,000
Age					
5-6 year olds	389	722,000	276	71.0	484,000
7-8 year olds	408	780,000	316	77.5	534,000
9-11 year olds	562	1,099,000	388	69.0	652,000
12-14 year olds	550	1,210,000	380	69.1	740,000
Language					
Spanish	1482	2,390,000	1117	75.4	1,744,000
Other non-English	427	1,422,000	243	56.9	665,000
Spanish					
5-6 year olds	304	467,000	233	76.6	352,000
7-8 year olds	320	486,000	257	80.3	390,000
9-11 year olds	430	690,000	312	72.6	462,000
12-14 year olds	428	747,000	315	73.6	540,000
Other non-English					
5-6 year olds	85	255,000	43	50.6	132,000
7-8 year olds	88	294,000	59	67.0	144,000
9-11 year olds	132	409,000	76	57.6	190,000
12-14 year olds	122	463,000	65	53.3	199,000
Spanish					
California	276	654,000	215	77.9	502,000
Texas	456	602,000	323	70.8	438,000
New York	226	364,000	200	88.5	316,000
Remainder of U.S.	524	770,000	379	72.3	488,000
Other non-English					
California	34	201,000	18	52.9	93,000
New York	53	245,000	29	54.7	152,000
Remainder of U.S.*	340	977,000	196	57.6	421,000

*For other non-English language by subpopulation, Texas was included with the Remainder of the U.S.

IX. SUMMARY

The present study provides estimates of the number of Limited English Speaking Ability (LESA) and non-English Language Background (NELB) children ages 5 through 14.

These data come from the Children's English and Services Study (CESS) and are useful in providing the Department of Health, Education and Welfare and Congress with information needed in the planning of bilingual education programs.

The CESS evolved into a complex enterprise and difficulties were overcome by virtue of the cooperative action of many groups and individuals. The Reviewers Group, with members designated by Chief State School Officers, Federal and contract personnel, provided especially valuable guidance and assistance. Three field tests of the English language proficiency measure and a pilot study of the instruments required the help of scores of state and local educational personnel and over 1,500 different school children. The planning and conduct of the field study and the analysis of data were carried out by a consortium of contractors working closely with the representatives of National Institute of Education and National Center for Education Statistics.

Although basic to the needs of the Federal government, the counts provided in this report are only a part of the data which will come from CEES. It is anticipated that other reports will be prepared at later dates.

Additional details concerning the present report may be found in Volume II of this study.

APPENDIX A

REVIEWERS GROUP

MASTER LIST - REVIEWERS

Name	Address	Reviewers Meetings Attended
Jerry T. Barton	Texas Education Agency 201 East 11th Street Austin TX 78701 (512) 475-4296	I, II, III, IV
Brian E. Bethke	Educational Specialist Illinois Office of Education 188 West Randolph Street Chicago IL 60601	IV
Ann A. Beusch	State Department of Education Box 8717 - BWI Airport Baltimore MD 21240	IV
Edith T. Byrne	Illinois Office of Education 188 West Randolph Street Chicago IL 60601	IV
Dan Chavez	Bilingual Consultant Urban Education Section State Department of Public Instruction Grimes State Office Building Des Moines IA 50319 (515) 281-3805	I, II, III, IV
Elena Chaves-Mueller	Bilingual Consultant State Department of Education 126 Langdon Street Madison WI 53702 (608) 266-2658	
David Chestnut	Foreign Language Education Advisor State Department of Education Education Building Room 501 Harrisburg PA 17126 (717) 787-7089	I, II, III

Anne Covill	Assistant Director Joint Data Project Council of Chief State School Officers 1201 16th Street, N.W. Washington DC 20036	II, III, IV
David Cox	Assistant Superintendent of Foreign Language State Department of Education Richmond VA 23216 (804) 786-7757	I, IV
Keith Crosbie	Coordinator of Bilingual Education Office of Superintendent of Public Instruction Old Capitol Bldg. Olympia WA 98504	I, II, III
Robert Esparza	Deputy Superintendent State Department of Education Sante Fe NM 87503	II
Jerry Fuller	Director Compensatory Education Section State Department of Education 942 Lancaster Drive Salem OR 97310	II
Al Gage	Consultant in Foreign Language Bilingual Education State Department of Education Oklahoma City OK 73105 (405) 521-3361	I, II
Carlos Gonzalez	Bilingual/Bicultural Education Section State of California Department of Education State Education Building 721 Capitol Mall Sacramento CA 95814 (916) 445-2972	III
Dr. Renato J. Gonzalez	Director of Bilingual Education Department of Education 420 Michigan National Tower Lansing MI 48909 (517) 373-9467	I

Elaine Gordon	Assistant Director Bilingual Education Office Michigan Department of Education Box 30008 Lansing MI 48906	III
Fannetta N. Gordon	Senior Advisor Language Education Pennsylvania Department of Education Bureau of Curriculum Services Box 911 Harrisburg PA 17126	IV
Dr. Arturo L. Gutierrez	Deputy Associate Superintendent Dallas ISD 3700 Ross Avenue Dallas TX 75204 (214) 824-1680	I, II
Michael Hebert	Bilingual Education Specialist State Department of Education P.O. Box 44064 Baton Rouge LA 70804 (504) 389-6486	I, II
Dean Hirt	State Department of Education 201 E. Colfax Denver CO 80203	I, II, III, IV
Dr. John Howard	Foreign Language Specialist Department of Education 501 Dexter Avenue, RM 606 Montgomery AL 36130 (205) 832-3820	I,II
Dr. Elliort Howe	Director Bilingual Education State Board of Education 250 East 5th South Street Salt Lake City UT 84111	II
Ms. Robin Johnston	Chairman State Bilingual Department of Education 340 Marion Street Denver CO 80218	II
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In Appendix A the members of the Reviewers Group have been listed. In this, Appendix B, the list includes staff members of the firms in the consortium who played major roles in the successful completion of the study, and the names of consultants who made some contribution to it. While for all firms the list only includes primary staff members who participated in the study, this in no way underestimates the significant contribution made by many others at support levels who worked very diligently toward its successful accomplishment.

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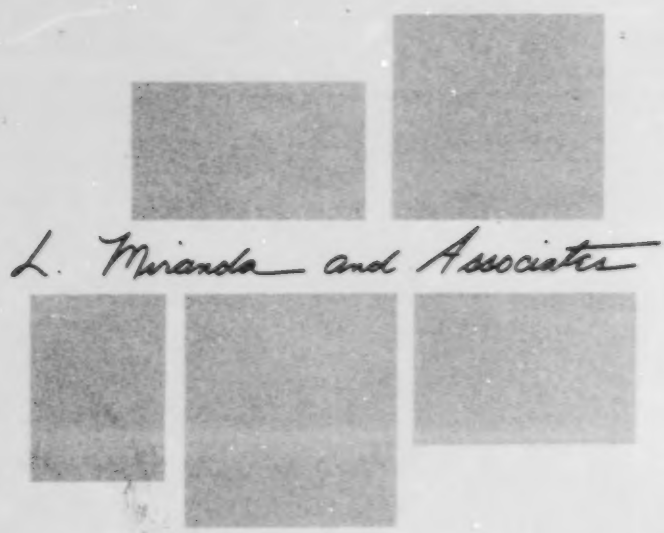
CHILDREN'S ENGLISH AND SERVICES STUDY

VOLUME II

TECHNICAL DESCRIPTION
APPENDICES



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CHILDREN'S ENGLISH AND SERVICES STUDY

VOLUME II

TECHNICAL DESCRIPTION

FEBRUARY 1979

SUBMITTED TO:

National Institute of Education
Department of Health, Education, and Welfare

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VOLUME II

Technical Descriptions

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VOLUME II

I. INTRODUCTION

This volume provides detailed data on the sample design, instrumentation, data collection, data analysis and conclusions.

Since these tasks involved the essential technical phases required for the successful completion of the study, the presentation in this volume includes descriptions of the technical approach without elaborating on the specific details of the work involved.

The material presented includes descriptive explanations of methodology and supporting statistical information used in the study development, as well as statistical results from the data collection. To the extent possible, the material has been organized so that the technical approaches described can be related to the sequence of events as processes took place following procedures and instructions prepared in detail for tasks and subtasks by the prime contractor or sub-contractor working together within the consortium.

A number of appendices bound separately are part of this volume to enable the reader to better interpret the descriptions included in it.

II. SAMPLE DESIGN

The sample design used for this study was an area probability sample of housing units. Approximately 37,000 dwelling units were screened to determine the eligibility of households for further survey. The survey covered children 5 to 18 years of age in the 50 States and the District of Columbia as the total universe. The following four subuniverses were used for design purposes:

- California
- Texas
- New York (State)
- Remainder of the United States

Because of budgetary and time constraints it was estimated that only about 75 counties (PSU's) could be surveyed. The design called for identification of about 2,000 non-English language background (NELB) households in those PSU's. The 75 PSU's were further subdivided into 591 area segments.

An earlier plan to survey 120 PSU's was abandoned because of its cost. The design reported here was modified from the earlier design. Thus, the selection probabilities reported here are the result of a double sampling procedure, i.e., the initial selection of 120 and the later step of sampling back to 75 PSU's.

A coefficient of variation of 15 percent on the national estimate of the number of limited English-speaking ability (LESA) children was targeted. The definition of LESA children had not been established at the time the sample was designed. For design purposes it was estimated that 20 percent of the children in NELB households would be LESA children.

Stratification

For stratification purposes, the remote counties in Alaska were eliminated from the universe because of the difficulty (and cost) of surveying them. All other counties in the survey universe were stratified by their estimated proportion of NELB households. The following procedures were followed in forming the strata:

- Census data on mother tongue from the Fourth Count Census tapes for 1970 were tabulated for each State and the District of Columbia.

- Since it was desired to use the special Fifth Count Census tapes to estimate the proportion of NELB households for enumeration districts and block groups, and since fewer mother tongues are reported on those tapes than in the Fourth Count, some of the mother tongues were aggregated with "all other." Specifically, French, Swedish, Russian, Hungarian and Portugese were collapsed into "all other" for purposes of estimating county measures of size.

- The number of persons with Spanish mother tongue was used as the "Spanish" measure of size.

- Under the assumption that LESA children are more apt to be found where there are concentrations of non-English mother tongues, the following models for non-Spanish, non-English measures of size were constructed and applied to county data.

- For counties with 10,000 or more pupils, the number of Spanish pupils was multiplied by 3.7378 to arrive at a new Spanish measure of size. The reason for applying the factor was to scale the OCR data to match the Census estimates.

The counties were coded into classes by percent Spanish and percent other NELB (as computed above) as follows:

Spanish Codes	Percent	Other NELB Codes	Percent
1	5	1	5
2	5-9	2	5-9
3	10-19	3	10-14
4	20-29	4	15-19
5	30-39	5	20-29
6	40-49	6	30-39
7	50-59	7	40-49
8	60+	8	50+

The counties were tabulated to show the number of counties, their total population and estimated number of NELB persons by all combinations of Spanish and other NELB codes of the four subuniverses studied.

As a function of the stratification, Spanish and other NELB were added together and coded by the same classes identified above for "Spanish." To avoid confusion with other terminology, these classes which were in effect county strata, were called "density classes." New York, however, was dominated by a few large counties and California was dominated by Los Angeles. These counties would be selected with certainty in almost any sample allocation scheme and would receive a disproportionately large allocation of the sample. After the selection of large counties with certainty and the selection of remaining counties with probability proportioned to their measure of size, the allocation of the sample was as follows:

Table II-1

Number of Counties Allocated to the Sample.

Subuniverse	Certainty Counties	Probability Counties	Total Sample
California	6	6	12
Texas	3	7	10
New York	4	5	9
Remainder of U.S.	11	33	44
Totals	24	51	75

Within the remainder of the United States, the sample of counties was allocated so as to gain efficiency from sampling at a higher rate than those counties with high density codes. The relevant data are shown in Table II-2.

Table II-2.

Density Codes, Measures of Size and Allocation of Sampled Counties to Remainder of U.S.

Density code	No. of counties	Measure of size (000)	Certainty selections		Remaining measure of size (000)	Probability sample	
			Number	Measure of size (000)		No. of counties	Measure of size (000)
1	1,875	1,798	0	0	1,798	5	30.4
2	644	2,851	0	0	2,851	10	237.5
3	161	3,899	5	1,356	2,544	13	949.8
4	33	975	5	680	294	2	17.5
5	16	284	1	117	167	1	13.7
6	11	68	0	0	68	1	5.7
7-8	15	180	0	0	180	1	29.3
Totals	2,755	10,035	11	2,149	7,902	33	1,283.9

A decision was made to vary the household segment size to reflect the variation in expected density of NELB households. In the least dense areas a segment size of 300 housing units was chosen and in the most dense areas a segment size of 25 housing units was chosen.

Data for estimating the number of NELB children were available from the Survey of Income and Education (SIE) conducted by the U.S. Bureau of Census in 1975. Key data from that summary are shown in Table II-3.

It may be seen that there are about two million households with children in the age range of 5-14 where a non-English language is used as the usual or other household language. Because the definition of non-English language background in the CESS and the SIE was the same, without stratification, one would expect about one household out of 35 nationally to be a NELB household with children in the age range of 5-14. If followed, this plan would require screening about 70,000 occupied housing units with 100 percent response to obtain a sample of 2,000 NELB housing units -- clearly an impossibility within the time and budgetary constraints.

Another key statistic from Table II-3 is the average number of eligible children to be tested per household. The range, shown at the bottom of the table, is 1.49 to 1.67. However for planning purposes an estimate of 1.5 was used to allow for some within-household nonresponse.

As a separate datum, an estimate of 800,000 LESA children nationally, or approximately one for every two and one-half NELB households was given, or stated differently, about one NELB child in five was expected to be classified as a LESA child.

Table II-3

Design Parameters of the Universe

Characteristic	California	Texas	New York	Remainder of U.S.	Total
Total year round housing units, 1970 (thousands)	6,977	3,808	6,152	50,720	67,657
No. of households with one or more children 5-14 and non-English first or second language (thousands)					
Spanish	337	287	204	401	1,229
Other non-English	122	38	157	543	850
Total	459	325	361	944	2,079
Percent of total housing units	6.6	8.3	5.9	1.9	3.1
No. of children 5-14 in NELB households Spanish (thousands)	668	608	393	786	2,455
Average no. per Spanish household	1.98	2.12	1.93	1.96	2.00
Other non-English	221	51	270	955	1,497
Average no. per other NELB household	1.81	1.82	1.72	1.76	1.76
Total	889	659	663	1,741	3,952
Average no. per NELB household	1.94	2.04	1.84	1.84	1.90
Estimated no. of test per household under the rule of no more that two per household					
Spanish	1.59	1.56	1.55	1.56	1.57
Other NELB	1.50	1.67	1.67	1.49	1.53

The most important statistic to be obtained from the survey is an estimate of the number of LESA children. At the time of the design there was considerable uncertainty concerning the specific definition of LESA. For this reason, the expected number of NELB children aged 5 - 14 was used as the measure of size in allocating the sample segments of housing units in the sampled counties.

Measures of size used in the design were scaled to equal Census estimates from the Survey of Income and Education as follows:

Table II - 4. Measures of Size Used in the Sample Design

Category	Westat measure (000)	Westat measure converted to HHs (000)	Est. NELB HHs from SIE (000)	Ratio
Subuniverse				
California	3,549	1,183	459	0.39
Texas	2,160	720	315	0.44
New York	3,309	1,103	361	0.33
Remainder of U.S.	10,070	3,357	941	0.28

Thus, the expected number of NELB households per segment, for various sized segments, was computed as shown in Table II - 5.

From a sample of U.S. counties it was possible to make estimates of the proportion of U.S. year-round-housing-units falling into each of the eight density classes in each of the four subuniverses of interest. The data are shown in Table II - 6. What is more relevant, however, is the distribution of the estimated number of NELB households by density class and subuniverse. That data, along with actual allocation of the sample, are shown in Table II - 7.

Table II-5 Expected Number of NELB Households per Segment for Various Sized Segments and for the Four Subuniverses

Density class of segment	Segment size (yrhus)	Expected no. of NELB households			
		California	Texas	New York	Remainder of U.S.
<5 %	300	2.3	2.6	2.0	1.7
5-9 %	200	5.5	6.2	4.6	3.9
10-19%	70	4.0	4.5	3.3	2.8
20-29%	30	2.9	3.2	2.4	2.1
30-39%	25	3.4	3.8	2.8	2.4
40-49%	25	4.3	4.9	3.7	3.1
50-59%	25	5.3	6.0	4.5	3.8
60+ %	25	6.3	7.1	5.3	4.5

Table II-6 Estimated Distribution of Year-round-housing Units by Density Class and Subuniverse

Density code	Percent of total year-round-housing-units in class			
	California	Texas	New York	Remainder of U.S.
1	6.7	31.3	5.9	51.0
2	27.5	24.7	21.2	25.9
3	40.4	17.7	34.0	16.8
4	11.5	7.6	20.5	3.4
5	6.0	4.2	9.2	1.1
6	2.9	2.4	4.0	0.6
7	1.8	2.3	2.4	0.3
8	3.2	9.8	2.8	0.9
Total	100.0	100.0	100.0	100.0

Table II-7 Estimated Distribution of NELB Households and Actual Distribution of the Sample By Density Classes and Subuniverses.

Density code	California			Texas			New York			Remainder of U.S.		
	Est. % of NELB's	No. of sample segments	Est. no. of sample NELB's	Est. % of NELB's	No. of sample segments	Est. no. of sample NELB's	Est. % of NELB's	No. of sample segments	Est. no. of sample NELB's	Est. % of NELB's	No. of sample segments	Est. no. of sample NELB's
1	0.8	1	2	3.7	2	5	0.6	1	2	13.7	11	41
2	11.2	8	44	10.2	4	25	7.6	4	18	24.3	33	129
3	34.1	18	72	15.2	4	18	75.1	17	56	32.6	121	339
4	16.4	19	55	11.1	5	16	25.6	19	46	11.4	53	111
5	12.1	12	41	8.5	5	19	16.2	12	34	5.0	31	74
6	7.6	12	52	6.4	2	10	9.0	13	48	3.3	25	78
7	5.6	8	42	7.4	3	18	6.7	12	54	2.0	17	65
8	12.2	26	164	37.5	32	227	9.2	18	95	7.7	43	194
Total	100.0	104	472	100.0	57	338	100.0	96	353	100.0	334	1,031

10 — X. Marmarelis — Anal. Assistance, Inc.

The sample was allocated to the density classes by giving a larger probability of selection to high-density segments. This disproportionate allocation reflected the higher cost of screening low-density segments and the expected lower percentage of LESA children in NELB households in low-density segments. Since the allocation was the result of a probability process, the actual allocation was unknown until the sample drawing was completed.

The results of the allocation and the selection process are summarized in Table II-8. Examination of that table shows that in the Remainder of the United States, where the problem of locating NELB's is most severe, we allocated 16.5 percent of the sample to areas where there are 38.0 percent of the NELB's (in low-density areas) and 32.7 percent of the sample to areas where there are 13.0 percent of the NELB's (i.e., in high density areas).

Selection of Sample Segments - The procedures for selecting sample segments within selected PSU's can be described by the following steps:

1. Using Special Fifth Count tapes, ED's and BG's* were aggregated to a minimum size of 30 YRHU's.** These units were called Large ED's (LED's).
2. The following measure of size were created:
   (a) Count of Spanish mother tongue
   (b) Percent of Spanish mother tongue.

*ED = Enumeration District; BG=Block Group

**YRHU = Year-round housing units

Table II-8 Distribution of the Sample of Collapsed Density Class

Subuniverse and characteristics	Codes 1-2	Codes 3-5	Codes 6-8
California:			
Percent of housing units	34.2	57.9	7.9
Est. percent of NELB's	12.0	62.6	25.4
Percent of segments	8.7	47.1	44.2
Est. percent of sample NELB's	9.7	35.6	54.7
Texas:			
Percent of housing units	56.0	29.5	14.5
Est. percent of NELB's	13.9	34.8	51.3
Percent of segments	10.5	24.6	64.9
Est. percent of sample NELB's	8.9	15.7	74.4
New York:			
Percent of housing units	27.1	63.7	9.2
Est. percent of NELB's	8.2	66.9	24.9
Percent of segments	5.2	50.0	44.8
Est. percent of sample NELB's	5.6	38.6	55.8
Remainder of U.S.:			
Percent of housing units	76.9	21.3	1.8
Est. percent of NELB's	38.0	49.0	13.0
Percent of segments	13.2	61.4	25.4
Est. percent of sample NELB's	16.5	50.8	32.7

(c) Measure of size for other non-English, (using instructions for creating measure of size for other non-English, given in Section 5);

(d) Percent other non-English;

(e) Total non-English (1) + (3)

(f) Percent non-English; and

(g) Data in (2), (4) and (6) above, were coded by the following classes;

1 = 5%
2 = 5-9.9%
3 = 10-19.9%
4 = 20-29.9%
5 = 30.39.9%
6 = 40-40.9%
7 = 50-59.9%
8 = 60% and over

3. LED's were sorted by ED-BG sequence within code classes of (6).

4. Within each code class a listing was created.

5. Within each selected county a sampling worksheet was prepared to select the sampled LED's, to determine the number of sample segments within them and to determine their probabilities of selection.

The initial plan was to sample 120 counties in the United States distributed as follows:

o	California	15
o	Texas	20
o	New York	15
o	Remainder of U.S.	70

About 650 segments were to be sampled in the selected 120 counties to obtain a coefficient of variation of 10 percent on the national estimate of the number of LESA children and a similar precision of estimates of NELB children in California, Texas, and New York.

It was determined, however, that resources were inadequate to produce this level of precision. At the same time, it was desired to have a relatively large sample of NELB children to provide a sufficient number for analyses of various subsets of the universe. The targeted level of precision was changed to a coefficient of 15 percent on the national estimate of the number of LESA children and an expected 2,000 children to be tested in the sample segments.*** To accomplish the revised objective, the number of sample counties was cut to 75 and the number of sample segments was cut to about 600.

This revision was made after the initial sample had been drawn. Thus, the sample of 75 counties is a subset of the sample of 120. The initial selection of segments was accomplished by drawing two segments from each

*** After allowance for expected non-response.

within-PSU stratum with probability proportional to size, and then selecting one of them at random. Cutting the number of PSU's from 120 to 75 and the number of segments from 650 to 591 required that, on the average more segments would have to be drawn per PSU. At the same time, constraints on the budget were so tight that the number of low-density segments had to be reduced.

III. INSTRUMENTATION

Four instruments were developed and used to gather data on the national sample. Copies of the actual survey instruments have been deposited with the National Institute of Education, as well as a separate report on the development of the Language Measurement and Inventory. (see also Appendix G)

The sequence for the utilization of the four instruments in the CESS was as follows:

Screening Questionnaire
↓
Household Questionnaire
↓
Language Measurement and Assessment Inventory
↓
Pupil Survey

Redesign of the Questionnaires - On the basis of the experience gained during the pilot test and after extensive consultations with representatives of the sponsoring agencies, the survey instruments were completely redesigned. While the concepts followed in the development of early drafts were retained, the contents were improved in terms of wording, structure and the approach used for obtaining information. A two-day debriefing of the field staff

used in the pilot test paved the way for the modification of the instruments.

The instruments and their purposes are stated below:

The Screener - The Screener Questionnaire was used to determine (1) if the family had children between the ages of 5 to 18 years of age whose usual residence was in the household, and (2) if the family usually or often spoke a language other than English in which case they were classified as being from non-English language background (NELB). If the household qualified on these two questions, the Household Questionnaire was then administered. Table II-9 on page 17 provides detailed information on responses for each of the subpopulations.

The Household Questionnaire - If a household was designated eligible in the Screener Questionnaire, the Household Questionnaire was administered. The parent or guardian was then requested to sign a Parental Consent Form, giving permission to send a Pupil Survey to each selected child's school and also indicating a time when the test could be given if there were one or two children from 5 to 14 in the household.

If approval for the test was given, the interviewer completed a form directing a test administrator to test the child(ren). If the Parental Consent Form was not completed, the supervisor called the respondent and again requested their cooperation.

Language Measurement and Assessment Inventory - The Language Measurement and Assessment Inventory (LM&AI) was developed as the

measure of English language proficiency in the Children's English and Services Study (CESS). It was developed for use in testing English language skills in reading, writing, speaking and understanding. Ten age level forms were developed, one each for ages 5 through 14.

TABLE II-9

Summary of Screening of the Subpopulation

(Preliminary Data Collection - Field Counts)

	Code	California	Texas	New York	Balance of U.S.	Total
Complete Screener & HHQ	1	293	390	232	737	1652
Eligible HH, but HHQ Not Complete	2	8	10	11	24	53
Complete Screener, Ineligible Household	3	3482	1747	2734	15690	23653
Incomplete Screener, Ineligible Household	4	311	190	269	1308	2078
Vacant	5	140	160	191	1225	1716
Not a Dwelling Unit	6	46	36	17	287	386
Can't Contact, Probable Eligible HH	7	23	11	5	18	57
Can't Contact, Probable Ineligible HH	8	728	260	848	3954	5790
Total		5031	2804	4307	23243	35385
Percentage*		78.08	82.32	72.63	75.70	76.19

* "Percentage" is the sum of Rows 1, 2 and 3, divided by the sum of Rows 1, 2, 3, 4, 7, and 8

The objective of each of the ten different tests was to be able to determine, on an objective basis, whether a given child has (1) limited English speaking ability (LESA), or (2) fluent English ability (FES).

The LM&AI was developed by L. Miranda and Associates, Inc. of Washington, D.C. When the experimental versions of the Language Measurement and Assessment Inventory became the final test to be used in the National CESS, the title of the set of instruments was changed to Language Measurement and Assessment Inventory (LM&AI). This was done to avoid confusion between the developmental versions and the tests used for official purposes.

Separate tests were developed for each age from 5 through 14. For each age, items were developed to reflect the minimum level of competence in academic English language skills expected of English-speaking children in school systems in the U.S. The test items are graduated in difficulty and sophistication and, by field test, were demonstrated to be within the experiential and knowledge background of the "typical" Native English Speaking (NES) child of the given age. The LM&AI was not administered to children aged 15 to 18.

The LM&AI was intended to measure whether the child successfully meets the criterion of academic English language performance needed to function in an English speaking classroom at particular ages and grade levels.

The sole purpose of administering this test was to identify Limited English Speaking Ability (LESA) children in order to count the number of children falling within this classification. It was <u>not</u> developed as a test to be used for

diagnostic or school placement purposes.

Using extensive field experiences and statistical analysis, a critical score was separately established for each of the ten tests. In the CESS, a child who scored below the critical score was classified as Limited English Speaking Ability (LESA) and anyone who scored at or above the critical score was classified as non-LESA. Thus, the classification of what is a LESA child is defined operationally as a child who, when tested on the appropriate LM&AI age form, fell below a given score. These critical scores were established after detailed statistical analysis of empirical data and were determined by discriminant function analysis on the field test sample.

By use of the LM&AI it was possible to identify, and thereby count, children who were LESA. Various estimates of LESA children found in this report are based on data derived from the use of the LM&AI. A detailed interim report on the LM&AI development and field tests was submitted to the National Institute of Education.

Pupil Survey - The Pupil Survey (PS) elicits information on the types of services that target children are receiving at the local school, the types of services needed, and certain information concerning local school programs. The PS is a self-administered questionnaire to be completed by a school administrator or the child's teacher. The PS was administered only after the parent or guardian had signed a release form.

The Pupil Survey Questionnaire was pretested at five schools in the Takoma Park/Silver Spring area, at two schools in Washington, D.C.,

and at three schools in Arlington County, Virginia. The responding teachers were later debriefed to obtain their reactions to the questionnaire. On the basis of these debriefings and extensive consultations with representatives of the sponsoring agencies, a modified version was subsequently pretested at the Arlington County Schools. Following additional debriefings and consultations, a final version was then drafted for use during the national study.

IV. DATA COLLECTION

This section describes the procedures used for conducting the field portion of the study. There were 13 regions established, each headed by a supervisor trained by the appropriate Consortium contractor. The 13 regions were covered by a staff consisting of 196 interviewers, 10 troubleshooters and 73 test administrators, all trained especially for their tasks.

The listing, screening and household interviewing in this study were done in a one-step operation whenever possible. The English proficiency test was accomplished in a call-back session by a person trained to administer the LM&AI.

Since one of the criteria for the study was to identify households of non-English language backgrounds, questionnaires had been translated into Spanish, and interpreters were used in households where other languages were spoken.

As part of the household interview, a parental consent form had to be obtained for each child selected for testing. The signed parental consent form made it possible to obtain educational information (the PS) concerning services provided by the school in which the child was

enrolled. The Pupil Survey Questionnaire was then mailed to the school along with a signed copy of the Parental Consent Form to obtain school information.

An important phase of the study involved individually testing children age 5 to 14 who were selected for the study to determine their English language proficiency. The testing was done in the child's home, in about 30 minutes time by a specially trained examiner.

The final phase of the study involved the Pupil Survey. This phase was dependent upon the cooperation of the educational systems in the 24 sampled states. Because this phase could not be initiated until near the completion of the household survey, the schedule of the Pupil Survey in some parts of the country coincided with the closing of schools. Obtaining the information proved to be a very difficult task. Efforts continued long after the collection of required data to complete the count of LESA children given in this report.

Field Organization - The field plan was organized to fit the sample design. For purposes of field operation, the Primary Sampling Units (PSU's) were grouped into 10 major regions with Hawaii as the eleventh region due to its distance from all other regions. New York State was divided into two regions because of the number of interviewers required as well as the difficulties associated with surveying the population of New York City. A regional supervisor was named in each case.
The number of interviewers actively working during the field operations was between 150 and 160. There were between 68-73 test administrators working and 10 trouble shooters. Three of the regional supervisors

were supported by assistant supervisors.

A system of quality control was established in the network of participants. Control measures included on-site visitations of personnel who were interviewing and testing. Observations by members of the contractors' staffs were made in many locations.

There were five major components of the field organization:

- The home office staff - Four key staff members and their support staff, reported directly to the project director.
- The regional offices - One regional supervisor in each of the 13 regions reported directly to staff in the home office. Three regional offices had assistant supervisors.
- The interviewing staff - The interviewers reported directly to the regional supervisor.
- The test administrator - Each region's test administrator (TA's) reported directly to the regional supervisor.
- Trouble shooters - Ten trouble shooters reported to the home office staff as well as to the regional supervisor.

The home office was headed by the project director and four key staff members -- two directors of field operations, the survey coordinator, and the assistant project director. Several junior staff persons supported these five persons.

The division of labor among the home office staff was as follows:

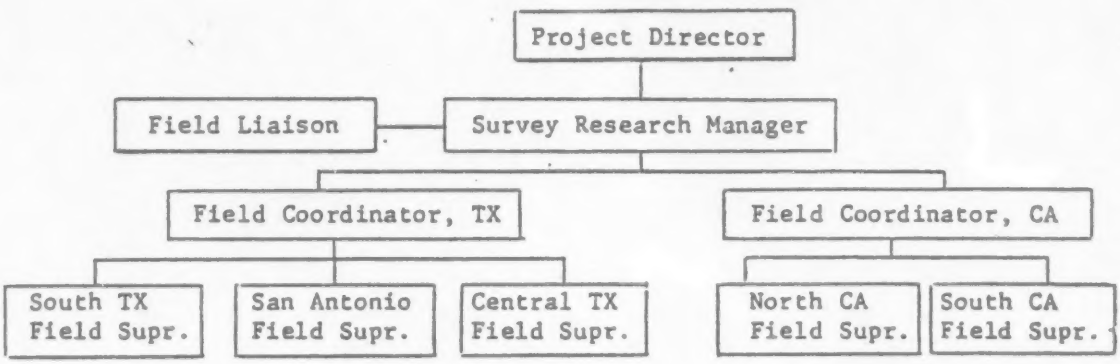
- o The project director was responsible for the coordination of all aspects of the survey.
- o The assistant project director developed the supervisor and interviewer training programs and was responsible for cost control.
- o The survey coordinator was responsible for quality control and procedures, materials control, home office receipt, and response rate computation, as well as assisting in the development of the training program.
- o The field directors shared responsibility for all recruitment of supervisors, interviewers, test administrators, trouble shooters and replacement recruiting due to attrition. They also were charged with field production, field observation, weekly reporting on level of field effort and supervision of traveling interviewers and trouble shooters.

The Regional Office - Westat established eleven regional offices for the project. The offices were located in Baltimore, Maryland: Ft. Harrison, Indiana; upstate New York; New York City; Kailua, Hawaii; Camden, New Jersey; Jacksonville, Florida; Midfield, Massachusetts; Albuquerque, New Mexico; St. Louis, Missouri; and Chicago, Illinois.

For California and Texas, Figure I illustrates RDI's organizational chart for the field data collection.

FIGURE 1.

Organizational Chart for Field Data Collection



Staffing Needs - A staffing plan was developed to fit the needs of each Primary Sampling Unit (PSU). Whenever a PSU showed a large concentration of any non-English language population, a decision was made to recruit one or more interviewers proficient in that language. Interpreters were to assist interviewers with any non-English language.

Interviewers - were selected by the regional supervisor. Each supervisor received a recruitment package outlining recruitment procedures. Interviewers were recruited through newspaper ads, community organizations, public employment agencies, other research firms and experienced interviewers.

The regional supervisor looked for people who were experienced interviewers. These applicants were screened over the telephone and references were verified.

Test Administrators - were also selected by the regional supervisor. The test administrators were selected from candidates who were experienced teachers and counselors. Many were recruited through universities, public employment agencies and the recommendations of schools and working teachers.

Trouble Shooters - were recruited by the Westat field directors. These 10 were selected from the files of experienced Westat interviewers. Westat recruited individuals who had previously travelled into areas that had experienced attrition and/or special interviewing problems. In California and Texas one interviewer and one test administrator were designated as trouble shooters.

For the 11 regions established by Westat, offices were situated in the home offices in California and three regional offices in Texas. A telephone was installed at each office for the project.

The regional supervisor had a variety of responsibilites which included direct responsibility for the supervision of the interviewers and test administrators, distribution of the work and monitoring their progress. Each week the interviewer submitted an Interviewer Weekly Status Report (see the Interviewer Training Manual); the Time and Expense Report; and all completed questionnaires and listing materials to the regional supervisor. The supervisor checked the Weekly Status Report

against the work received. A PSU-by-PSU report was then compiled on production and response rates for the region and phoned-in to the director of field operations. Schedule and response rate problems were discussed at that time. Completed questionnaires were edited and then logged into the regional supervisor's Master Control Log.

The regional supervisor was also responsible for the validation of all completed screeners and questionnaires. All completed cases were listed on the verification log. Ten percent (10%) of all completed cases were listed on the verification log and were contacted for further verification in the field.

The regional supervisor coordinated the administration of the Language Measurement and Assessment Inventory Instrument (LM&AI) and edited the tests before shipping to Westat. The supervisor was in frequent communication with the interviewers who identified the children to be tested, and with the test administrator who administered the tests to the children.

An added responsibility of the regional supervisor was the supervision of the trouble shooters sent into a region because of interviewer attrition or difficulties obtaining completed assignments.

Table II-10 shows the bilingual capabilities of the overall field staff who collected the data and administered the LM&AI. The most important position for the bilingual capability was the interviewers because the tests were administered in English. Test administrators were not required to be bilingual because the test was administered in English.

Training - Since three research groups and numerous interviewers and test administrators were involved in the data collection efforts, extra care was taken to assure that standard procedures would be followed in all training sessions.

There were three parts to the training program:

- Supervisor training
- Interviewer and trouble shooter training
- Test administrator training.

Table II-10. Bilingual Characteristics of Overall Field Staff

Survey title	Total	Bilingual	Language spoken											
			Spanish	Yiddish	Italian	German	Japanese	French	Portuguese	Hebrew	Norwegian	Polish	Navajo	English only
Regional supervisors and field coordinators	12	4	4											8
Assistant and field supervisors	8	0												8
Interviewers	192	88	65	7	3	3	3	2	1	1	1	1	1	104
Test administrators *	73	19	19											54
Trouble shooters	10	3	3											7
TOTAL	295	114	91	7	3	3	3	2	1	1	1	1	1	181

*Test administrators were not required to be bilingual since all tests were administered in English.

K. Miranda and Associates, Inc.

Training Sessions and Locations - Supervisor training was held in Washington, D.C. on March 5, 1978. The training included a review of the training for the interviewers, as well as training specific to the supervisory functions, e.g. administrative procedures, etc. The training was attended by the 11 supervisors and the three assistant supervisors.

There were three sessions of test administrator training. These sessions were held in Washington, D.C., Dallas, Texas, and Los Angeles, California.

Interviewer training was held in different parts of the country. The first session was held in New York City, March 2-4, 1978. The remaining three sessions were held simultaneously March 8-10 in Chicago, Illinois, Washington, D.C. and Albuquerque, New Mexico.

Training Sessions - The supervisors received a summarized version of interviewer training. The same home study, "learning communities," demonstrations, exercises, lectures and role plays that were to be used at interviewer training were employed at this session. However, the pace was accelerated in order to go through the schedule in a shorter period of time. It was believed that this group could move at a quicker pace because of its small size and the experience level of the group.

Time was spent preparing supervisors for their role in interviewer training. They were to be community leaders and were to have responsibility for a group of trainees (a learning community). During their training, each supervisor was given an opportunity to act in the role of community leader. Instructors used the Trainer's Manual and techniques for special use at

interviewer training.

Other training activities included the review and instruction of the field quality procedures, field edit of the questionnaire, interviewer assignment, communications with interviewers and home office, verification of interviewers, and receipt control and reporting.

Each interviewer training session was conducted by two to four office staff members and four or five supervisors depending on the number of "learning communities" at the session. The training staff consisted of three teams (10 project staff in total). The first team, under the supervision of the bilingual field director, conducted the New York and New Mexico sessions. The second team, directed by the assistant project director, had responsibility for the supervisor's training and Washington, D.C. interviewer sessions. The third team directed the Chicago training. All supervisors were present at at least one session(s) attended by the majority of interviewers from their region.

A Home Study packet had been mailed to interviewers before the interviewer training began. The packet presented an introduction to the survey and covered the general approach to interviewing, listing, basic field procedures and the screener questionnaire. Interviewers were asked to study the material in the packet before the training session.

Trainees were grouped into "learning communities" and assigned a table for the entire week of training. There were eight to twelve trainees in each learning community. Each community was assigned a supervisor or trainer as the "community leader." The responsibility of the community leader was to take charge of all the learning activities carried out in his/her group. The community leader was

there to answer questions, help with any problems, and work with and observe the progress of the trainees.

Test Administrator Training - L. Miranda and Associates directed three training sessions for test administration held for the field supervisors and test administrators. The training format was a discussion of the test, pointing out similarities and differences between the tests for the various age groups. The trainees had the opportunity to examine the total testing package for 10 years olds. The testers expressed concern that there wasn't the opportunity to examine the tests for the other nine age groups nor was there an opportunity to practice or role play a test during training.

Aside from the discussion of the tests, a 46 minute color video tape was used to demonstrate the administration of the LM&AI. Copies of the video tapes were made available to all those who were instructing other Test Administrators. L. Miranda and Associates also developed the following printed materials for the administration of the LM&AI.

- o training manual
- o trainees handbook
- o picture and words handbook
- o field procedure handbook

Copies of the above printed materials have been deposited at the National Institute of Education.

Field Operation - The number of interviewers for each region was determined by the size of the region and the expected sample yield rate.

Seventeen supervisors were hired, each to supervise a geographical region. The 13 regions were covered by a staff consisting of 196 interviewers, 10 trouble shooters and 73 test administrators. Westat's responsibilities included training, supervising and monitoring its own and RDI's field staff. L. Miranda and Associates had the responsibility of training all test administrators.

The listing, screening and household interviewing in this study were done in a one-step operation. Time and budget constraints were the determining factors for adopting this method of operation. Testing of selected children was done by qualified test administrators shortly after the household interviews had been completed.

The study involved households where languages other than English were spoken. Steps were taken to reduce the effect of the non-English languages spoken. One technique used was to prepare Spanish language versions of the questionnaires. For other language groups, interpreters were used. The interpreters were generally university students or professional level individuals.

Listing and Interviewing - Westat's sampling department was responsible for drawing the sample used in this study. Areas or segments with a low sample yield were listed in their entirety, while very large segments were subdivided by a method known as "chunking". All instructions were clearly defined for the lister and any problems or changes encountered were directed to the sampling department for further instructions before listing the segment. Although the sample yield was monitored closely, the data collection method adopted for this study did not permit identification of the total yield until a segment was completed.

Following data collection, interviewers received the following materials:

- Instructions for listing
- Segment folders, containing
  a. Census map
  b. Sketch maps (two copies)
  c. Listing sheets
  d. Special instructions for the segment if necessary
- Westat/RDI ID card
- Screeners (English/Spanish)
- Household Questionnaries (English/Spanish)
- Parental Consent Forms

Interviewers were instructed to first identify the segment, then cruise the area using the Census map to assist in verifying the segment boundaries. In cruising the segment, the listers were instructed to obtain an approximate count of the dwelling units and to compare these with the range provided by the sampling department. If the count was either substantially higher or lower than the estimated yield, listers were instructed to call their supervisor who, in turn, would call the sampling department at Westat. If no problems or changes were encountered, then listing could begin.

Since listing and interviewing were done in one operation, the lister (interviewer) would list a household and attempt to administer a screener and household interview (if eligible) in one visit.

In addition to their I.D. card, interviewers also carried introductory letters to give to the respondents. The letter was printed in English and Spanish and served to introduce the study and seek the respondent's cooperation. (See Exhibits II-1 and II-2). Language cards were also printed for respondents of non-English and non-Spanish background. The cards also introduced the study, but the primary purpose was to define the language spoken so that interviewers could arrange for an appropriate interpreter. The cards were printed in Japanese, Chinese, Polish, Italian, French and Yiddish.

Obtaining Parental Consent - The interviewer was instructed to obtain the Parental Consent Form (PCF) (See Exhibit II-3), upon completion of the Household Questionnaire. The purpose was to be able to get Pupil Survey data from the school at a later date. In most cases, the PCF was signed and given to the interviewer. However, in a few instances the parent refused to sign and asked for more time to consider the matter or to check with the spouse or school administrator. In these cases, the Test Administrator was advised to pick up the PCF if a child was to be tested. If no TA was to go to the household, the interviewer made additional attempts to get the PCF signed. If the parent refused a second time, the response was recorded as a refusal, and no further effort to obtain a signature was made.

Table II-11 provides data on the Parental Consent Form. The table and explanation may be seen in page 37.

Exhibit II-1. Interviewer introduction letter

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

NATIONAL INSTITUTE OF EDUCATION

WASHINGTON, D.C. 20208

Dear Respondent:

I would like to ask you to answer some questions for us as part of a study on Children's English and Services. This study concerns children who come from homes where a language other than English is spoken. The Congress* has asked us to conduct this study to improve schooling for these children.

Only the people who work on the study will see your answers. Your name will not appear with the answers when the results are reported. If you agree to help us, you can refuse to answer any questions.

I will be grateful to you if you decide to participate. Your help will be very important in providing better school programs for children who come from homes where a language other than English is spoken. Please feel free to ask the interviewer any questions you may have about this study.

Sincerely,

Mary F. Berry
Assistant Secretary for Education

*Section 405 of the Education Amendments of 1974

Exhibit II-2 Interviewer introduction letter

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

NATIONAL INSTITUTE OF EDUCATION

WASHINGTON, D.C. 20208

Estimado/a Señor o Señora,

Quisiera hacerle algunas preguntas con relación a un Estudio Infantil sobre el Inglés y Servicios Educativos. El estudio concierne a los niños que vienen de hogares donde se habla otro idioma que no sea el Inglés. El Congreso de los Estados Unidos nos ha pedido realizar este estudio con el propósito de mejorar la educación que reciben estos niños.*

Sus respuestas a las preguntas que le hagamos serán vistas solamente por las personas que trabajan en el estudio. Su nombre no aparecerá en los resultados cuando éstos sean dados a conocer. Si usted decide ayudarnos, puede negarse a contestar cualquier pregunta que no desee contestar.

La estaré muy agradecida si usted decide participar. Su ayuda será muy importante para mejorar los programas educativos de los niños que vienen de hogares donde se habla otro idioma que no sea el Inglés. Por favor haga cualquier pregunta que usted pueda tener acerca del estudio durante la entrevista.

Sinceramente,

Mary F. Berry
Subsecretaria para la Educación

*Le ley se encuentra en 20 U.S.C. 880b-10, 12, 13

The following formula was used to compute response rate for those eligible and enrolled:

$$\text{Response rate} = \frac{\text{Total Children for which PCF was signed}}{\text{Total Children in Sample Ages 5-18 (excluding those not eligible)}}$$

Table II-11

Parental Consent Form Results

	California	Texas	New York	Balance of U.S.	Total
Total Children 5-18	538	695	408	1312	2953
Signed	470	630	362	1174	2636
Refused	42	36	34	70	182
Not Eligible*	26	29	12	68	135
Percent Signed	91.80	94.59	91.41	94.37	93.34

*Almost all were not in a school.

Exhibit II-3 Parental Consent Form

Dear Principal:

You, or the school official you appoint, have my permission to fill out the attached questionnaire about my child. I also give you permission to provide the answers to (name of firm).

I understand that:

- the answers will be used in the Children's English and Services Study; and
- this study is being conducted by L. Miranda and Associates, Inc./ Westat, Inc./RDI for education agencies in the Department of Health, Education, and Welfare.

I have been made fully aware of the care being taken by the firm named above to protect the information you provide about my child. I understand that:

- only the people who work on this study will see the answers; and
- my child's name will not appear with the answers when the results are reported.

I also understand that the information is being asked to help improve schooling for children who come from homes where a language other than English is spoken.

I have kept a copy of this form.

(Name of Child)	(Print Your Full Name)
(Age) (Grade)	(Your Signature)
(School Name)	(Relationship to Child)

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L. Miranda and Associates, Inc.

Receipt Control - The Westat receipt control staff was responsible for the receipt and edit of all questionnaires, and for shipment of completed household packets to the Resource Development Institute. The edit performed at Westat involved checks on skip patterns, legibility, proper selection of children during the screening, complete information obtained about the selected children and proper administration of the tests. In addition, the procedures called for the assignment of final disposition codes to each instrument based on quality control checks. Two sets of codes were needed, a Westat code and an RDI code. Only completed household packets and tests were shipped to RDI; all other ineligible screeners were keypunched and stored at Westat. A parallel, but separate receipt and control process, was used by RDI.

The specific instructions for logging eligible packets were:

1. Date box when received at RDI.
2. Put all packets inside box in sequential order.
3. Check PSU, SEG and DU numbers on all forms (Screener, Household Questionnaire, LM&AI, Other) inside each packet.
4. Circle each item received on outer envelope with red pen.
5. Note any missing or not registered items (item not included/not registered) on the Unusual Editing Problem Form.
6. Date outer envelope, Screener, Household Questionnaire, LM&AI, and any other form included inside packet.
7. Initial the outer envelope.

8. Open Screener to page 3, find person numbers and two-digit age numbers of eligible participants, and write this information on outer envelope. There may be a maximum of three persons to whom the questionnaire can be administered. A maximum of two persons may be administered the test.
9. See page 18 of Household Questionnaire and page 3 of Screener. Write the person numbers from Screener in the box for "Target Child" on page 18 of HHQ.
10. Complete Editor's Control Log for Household Questionnaire Packages Forms.
11. Check log sheet against the transmittal sheet.
12. Give logging sheets, transmittal sheets, and the Unusual Editing Problem Forms to the chief editor.

A list of identifying numbers was prepared daily. From the list a set of labels was prepared on an MTST typewriter to assure correct duplication. The labels were then affixed to each instrument in each package. This procedure was used to reduce the possibility of misreading the handwritten identification number when the instrument went to data processing.

The packets were then separated into groups depending on the type of instrument, i.e., Screener, Household Questionnaire, etc., and edited in preparation for data processing. Packets under review by the editing/data control staff or by the data processing staff were kept under strict control and filed in a locked data file room.

Reporting - Each supervisor kept a set of records which contained detailed information about each DU in every PSU and segment assigned to him or her. Reporting forms were developed by Westat. The information included whether the DU was eligible, the number of eligible and selected children, if the Household Questionnaire was completed, and the number of calls necessary to complete acquiring the data.

Administration of the Language Measurement Assessment Inventory (LM&AI) - An important phase of the study involved the testing of children aged 5 to 14 selected for the study to determine their English language proficiency. It was essential that the timing of the test administration be geared to accomodate the child and the family, and that it be done shortly after completing the household interview.

Appointments - After the interviewer had completed the household interview, the interviewer would inform the respondent that a test administrator would be calling to set up an appointment for conducting the test. The interviewer attempted to arrange the best time for the test administrator to call. Test administrators were advised to call or visit the household within 24 hours.

Comments from test administrators (TA) indicate that parents were generally receptive to the TA coming into their homes. TAs made few complaints suggesting lack of cooperation by parents. Parents occasionally wanted to observe but rarely caused a distraction for the child.

Testing of the Children - The ideal situation for conducting tests of this nature is one in which the test administrator has the total cooperation of a parent and child. Generally, the parent was very willing to cooperate. Only rarely was there no test given because (1) the child was uncooperative, or (2) the child was not located or available at home.

In some instances problems arose in testing children in the lowest age levels. This was not unexpected because of the relatively short attention span of such children and because of the language difficulty which was often present. These two problems account for many of the terminated tests listed in Table II-12 which outlines the disposition of the LM&AI in the four geographical categories.

TABLE II-12

Summary of LM&AI Test Administration

	California	Texas	New York	Balance of U.S.	Total
Total Selected, 5-18	538	695	408	1,312	2,953
Completed Test	277	415	230	811	1,733
Refused	7	26	28	66	127
Breakoff	2	0	0	2	4
Terminated	33	45	49	49	176
Child over age	3	3	1	1	8
Handicapped	1	0	2	5	8
Not Available during Test Period	51	26	14	29	120
15-18 Years Age --No Test	115	160	81	324	680
Cannot Determine	35	12	1	17	65
Wrong Age Level Test Given	14	8	2	8	32

(See definitions of categories on the next page).

Definitions of Categories on Stub of

Table II-I2

Refused	Either parent or child refused to allow the test to be conducted.
Breakoff	Either parent or child stopped the test after allowing it to start.
Terminated	Test administrator stopped the test in accordance with the test directions after a given number of questions were incorrectly answered.
Child Over Age	The child turned to age 15 (beyond the testing range) after interviewing but prior to administering the test.
Handicapped	The child was either physically or emotionally unable to respond to the test.
Not available	During Test Period - The child did not keep testing appointments or was otherwise unavailable for testing after the parent had consented to the testing.
15-18 Years Age	Beyond the testing range but in the sample.
Cannot Determine	No test was given but information was insufficient in the package and other records to determine the reason for no test.
Wrong Age Level Test Given	The child's age did not correspond to the level of test which was given.

Monitoring Field Data Collection - As prime contractor for the CESS, LM&A was responsible for making certain that all work performed during the field data collection was of the highest quality. This responsibility required that LM&A provide monitoring of data collection activities undertaken by the project's two subcontractors -- Westat and RDI. To accomplish this, LM&A designed and implemented a field monitoring plan that began with observation of and participation in the training of field supervisors, interviewers and test administrators. This observation and participation occurred during the weeks of March 2 through March 11, 1978. Additionally, during the weeks of April 1 through April 19, LM&A staff visited eight of the Westat field supervisors, four of the RDI field supervisors and observed selected test administrators.

LM&A staff visits to supervisors (April 1 to 19) had three goals: 1) to review records/logs of completed work; 2) to discuss the progress of data collection including the yield of NELB families; and 3) to identify field problems especially those related to the LM&AI. A total of 12, or 75 percent of supervisors were visited by LM&A staff. Each supervisor was asked to provide LM&A with information on any difficulties they or their staff were having completing the screeners, HHQ or LM&AI. (See Appendix C). They were also asked if they were able to easily accomplish their assigned tasks, such as verifications of 10% of each interviewer's works, and review of LM&AI using the answer sheet review checklist designed for this purpose. Additional inquiries were made to determine if certain field procedures were feasible (contacting the home within 24 hours after a child had been identified for testing), and how test administrators were receiving their testing assignments. Finally, each supervisor was asked

to give a subjective analysis of the progress of work, to assess the manageability of their tasks and to make any request for help from the "home office" that might facilitate their work.

The task of observing test administrators was jointly accomplished by LM&A, RDI and Westat. (See Appendix D for observation instrument). During the course of the data collection period, difficulties in New York and New Mexico necessitated a change in Westat's commitment to have supervisors observe in those states.

The purpose of observing test administrators was to detect testing errors not apparent from a review of completed tests i.e., adhering to time limits, improper encouragement, repetition of test items where no repetition is allowed. LM&A staff and Westat/RDI supervisors used the same test administrator observation checklist.

The quality control procedures observed in this study included a field edit by the interviewer, a scan edit by the field supervisor, a 100 percent quality check by the receipt control department and a 10 percent verification of data obtained in all field instruments. In addition to assuring completeness of item reporting and accuracy in following skip patterns, Westat also monitored each interviewer's progress and performance.

Field Editing - Interviewers working on the study edited their listing sheets and completed questionnaires before mailing them to their supervisors. In cases where critical omissions were discovered by the interviewer, a call-back was made to the household before mailing the materials to the supervisor.

One hundred percent of each inteviewer's work was edited by the supervisor during the first week's work; this was later reduced to a scan edit, if no major problems persisted. The supervisor's edit included a check on the following items:

- Skip logic errors
- Uncodable response
- Illegible response or codes
- Missing data items
- Inconsistent responses
- Possible recording errors
- Improper subsampling and
- Incorrect final disposition codes.

Any editing problems encountered were summarized on a problem sheet and discussed with the interviewer. Crucial omissions producing eligibility in the screener required a telephone recontact to the respondent by the supervisor (if a telephone existed), or a personal visit by the interviewer (if no telephone esited). If the problems were overlooked at the site office and later detected by the receipt control department, the supervisor was then contacted and asked to resolve the problem by calling the respondent or the interviewer.

Household questionnaires that contained 5 or more missing items and/or errors were handled in two different ways; (1) if the household questionnaire had a telephone number and contained 5 or more missing items and/or errors they were held back for data retrieval by means of a

telephone call to the household; and (2) if the questionnaire did not have a telephone number and had a similar number of missing items and/or errors the problem was resolved by contacting the interviewer only. This rule was ignored in two cases because the problem was more severe in that the child was left out of the household questionnaire entirely, so the household was recontacted.

Any procedural or questionnaire changes implemented during the survey which affected the administration of questionnaires were brought to the attention of the project director for a decision and then disseminated to all field personnel to be implemented immediately. A Policy Decision Form was designed to properly document these changes.

Verification - Verification of interviews was designed to perform two functions in this study: (1) to insure that interviewers followed the proper procedures, and (2) to provide the assurance that interviewers were leaving respondents with a good impression. The former guaranteed the quality of the data, and the latter was a factor in both data quality and in success at future contacts by the administrators.

A Verification Log which randomly selected 10 percent of all completed cases to be verified was designed. This was a progressive log which separated completions into two categories - with telephone, no telephone. Supervisors then verified each case with a telephone listed on a bulleted line. A maximum of four attempts was required for each case.

Field verifications were to be conducted in cases where an interviewer frequently encountered respondents with no telephones. Incidents which

would possibly require a field verification, such as falsification of interviewers, were discussed with the field directors.

In the verification the supervisor verified the final status of the interviewer, the length of the contact, several general questions about the contents of the interview, and the general demeanor of the interviewer. If the verification revealed any suspected fraud, the interviewer's work was reassigned and the individual dismissed.

Pupil Survey - The Pupil Survey was the final phase of the study. This phase was dependent upon the cooperation of the educational systems in the 24 sampled states and upon the ability to mail the Pupil Survey Questionnaires to the schools promptly. Since this phase could not be initiated until near the completion of the household survey, the schedule of the pupil survey in some parts of the country coincided with the closing of schools. Obtaining the information proved to be a very difficult task.

This section briefly describes the procedures in organizing and implementing the Pupil Survey. The period for questionnaire shipment and receipt took only six weeks for completion. Initial contacts and further communication with school officials to finalize their data collection preferences, prior to the mailing, spanned a period of about three months.

A summary of the pupil survey is given in the Table below.

Table II-13

Pupil Survey Summary

	California	Texas	New York	Balance of U.S.	Total
Total Children 5-18	538	695	408	1,312	2,953
Number Signing PCF	470	630	362	1,174	2,636
Number Not Eligible or Refused	68	65	46	138	317
Questionnaires Ret.	120	57	196	716	1,089
Questionnaires Not Returned or District Not Participating	349	573	166	458	1,546
Incorrect School/ Name	1	0	0	0	1

The results of each phase of the survey, (containing figures broken down by region and taken directly from the survey control computer file) may be found in Tables 7-1 to 7-5 located in Chapter 7 of Westat's final report submitted to L. Miranda and Associates, Inc. A copy of this final report has been submitted to the Project Officer of the National Institute of Education under separate cover.

Obtaining Cooperation from State Education Agencies - The Pupil Survey required different levels of communication with educational agencies in all sampled states, depending on how they elected to manage the study in their states with LEA and school officials. Obtaining cooperation and finalizing the individual state options proved to be a time-consuming and a multifaceted operation.

Early in the spring, Westat mailed a letter (see Appendix B) and information about the CESS study to the Chief School State Officers in all 24 states. The letter was signed by the Assistant Secretary for Education of the Department of Health, Education and Welfare. In an enclosure to the letter to the CSSO, the CSSO was asked to select one of three options for the data collection of the Pupil Survey Questionnaires within his or her State. The following options were included: (1) the State Education Agency would receive and distribute all questionnaires to the appropriate schools directly or through the LEAs and the individual schools would take the responsibility for returning the completed questionnaires to Westat; (2) the Local Education Agency would name a LEA Coordinator who would be responsible for the receipt and distribution of all questionnaires to the schools and also the return of the questionnaires to Westat; (3) the individual schools indentified in the survey would receive all questionnaires and would return them to Westat upon completion. Five States selected Option 1, eight Option 2 and none selected Option 3.

While the five States selecting the first option stuck by their decision, some of the States opting for the other two choices vacillated from one option to the other. One State did not select a firm option

until the latter part of the survey.

Two states, Wyoming and Minnesota, although very cooperative, did not have any selected children in the sample. The only state which refused to cooperate (Missouri) had only two children in the sample, and both were attending private schools so official sanction by the states was not required.

Private parochial schools identified in the study were contacted through the Director of Education in the diocese or directly with school administrators. The cooperation and response was laudable.

Mailout of the Pupil Survey - The preparation of Pupil Survey Questionnaires for mailout became a very time-consuming task and required several steps which were not anticipated.

First, the responsibility of mailing the PSQ's from the site offices was switched to the Westat home office because the supervisors were overburdened with day-to-day supervision of their staff. This required setting up a pupil survey department.

For California and Texas, Pupil Surveys were mailed as soon as notification of a participating school district and a name of a student in that particular district were received. A postage paid self-addessed envelope was also included along with a letter indicating the person at RDI who could answer questions about the survey.

Second as soon as it became apparent that waiting for the completion of the total packet in the field would create serious delays for the pupil survey, superivsors were instructed to mail Parental Consent Forms and Pupil Survey forms immediately upon completion of the household questionnaire. This procedure would reduce the delay slightly.

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Third, respondents in many households were not able to give the addresses for their children's schools and an address search had to be conducted at Westat. In some cases, telephone inquiries with the school had to be made to verify if the child was in fact enrolled there.

Fourth, schools discouraged multiple mailings of questionnaires, so it became necessary in many instances to wait until all the questionnaires for a school had been received before mailing them. In a number of these cases the coordinators were notified prior to mailing of the number of questionnaires that would be mailed and the date of mailing. This arrangement suited the coordinators and schools and enabled Westat to obtain greater cooperation in spite of the time constraints.

Even with such measures to ensure that the questionnaires went to the appropriate schools, a few questionnaires were returned because the students were not enrolled in the schools. However, this number was insignificant.

Receipt Control - The Pupil Survey Questionnaire was designed to be a simple, straight-forward questionnaire, so the quality control checks required were very basic skip patterns, missing information, and eligibility.

Questionnaires returned from the schools fell into one of three cateogries: (1) completed, with few or no missing items; (2) incomplete, either because the child was never enrolled in that school, currently not enrolled and no school records were available, or the child did not fit the eligibility criteria (in their estimation); or (3) refusal, meaning that the school later received a note or phone call from that child's parents advising them not to release any information for the survey.

Great emphasis was placed on proper log-in and receipt procedures because it was envisioned that not all schools would have sufficient time to respond and, should a followup survey be administered later, careful non-response records would be crucial.

Followup - Followup efforts for the Pupil Survey were limited by the fact that many schools were closing by the end of May or early in June. To eliminate or at least limit the amount of effort in this task, the pupil survey staff first mailed out questionnaires to those schools with early closing dates.

About two weeks' time was allowed for each State before followup calls were made. If very few or no questionnaires were received by the end of the two-week period, a phone call was made to the coordinator to inquire if the materials had been received. Only staff members with telephone interviewing experience were utilized. A guide was prepared for their use while on the telephone to ensure that the schools did not feel harrassed or intimidated. Only those States with the highest number of students in the sample were contacted. These included Florida, New Jersey, New Mexico and Massachusetts.

Because RDI did not receive notification from the State of California until late in the school year, followup was limited to school districts which agreed to review the Pupil Survey Questionnaire before deciding whether or not to complete it.

In Texas there was no reason for additional followup since the CEIS Coordinator required that he be the only original contact with the districts and that RDI could deal with those districts willing to participate in the study.

V. DATA PROCESSING AND ANALYSIS

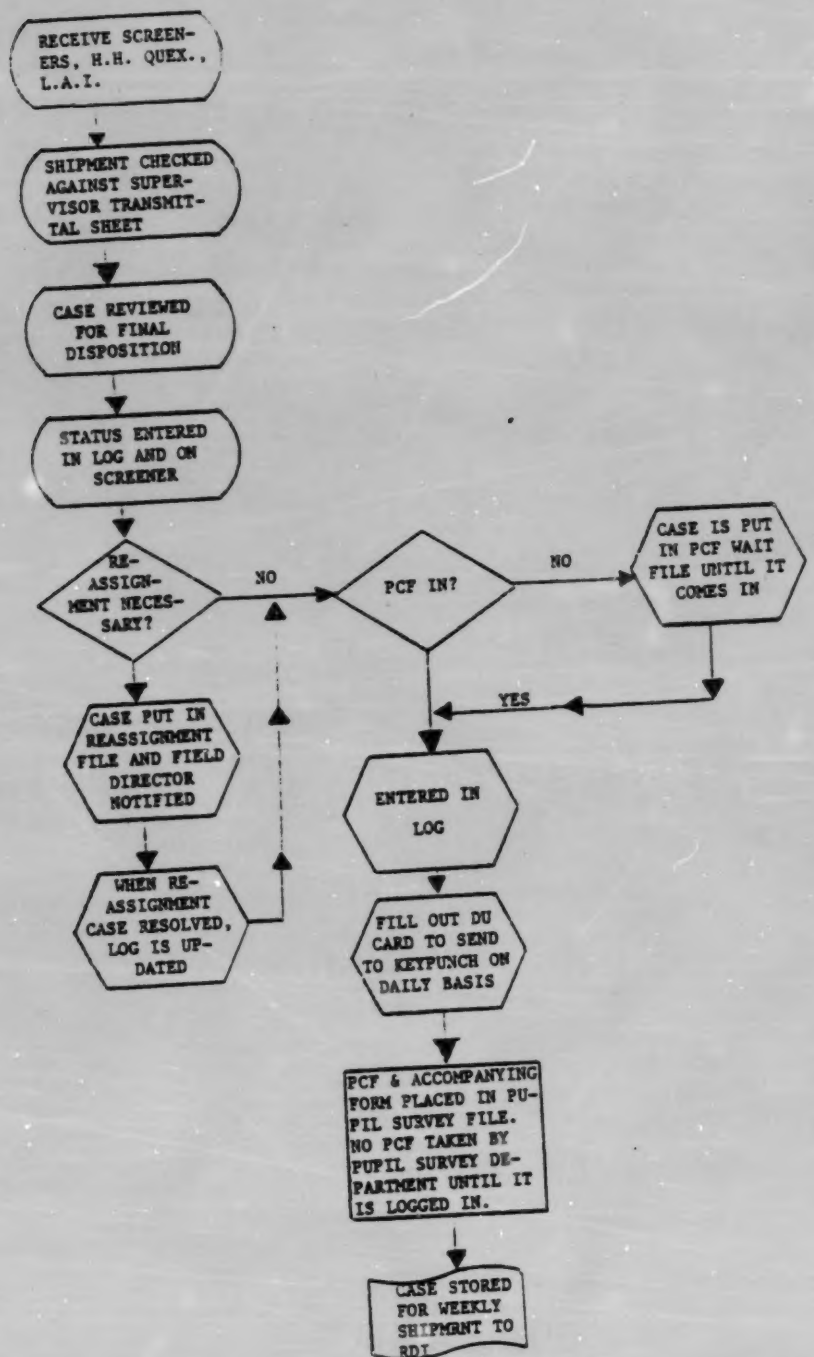
The data processing and analysis tasks included: (1) production of information concerning the data collection efforts (i.e., the sample yield), (2) scoring the LM&AI (the criterion for identifying LESA children), (3) application of disposition codes showing the eligibility of each respondent to be included in the study and whether the survey instruments and tests were completed, (4) calculation of final response rates, (5) calculation of non-response and subsampling sample weights, and (6) calculation of weighted NELB and LESA counts.

A tight and efficient control system for the receipt of questionnaires from the field and for the flow through the data preparation process was necessary. A computerized survey control system was implemented. The Receipt Control Center for the study was primarily responsible for receiving and documenting all field materials and for shipment of completed questionnaires to RDI for data processing. (Westat maintained the ineligible and neighbor information-survey packets from New York and the Remainder of the U.S.) Each packet was coded to show the outcome of the interview and a tally of complete and incomplete forms was kept (see Appendix E for the procedures for estimating totals and proportions).

Inasmuch as RDI was responsible for data entry, all of the completed instruments were edited on an item-by-item basis at RDI. RDI also reviewed the Texas and California ineligible and neighbor information materials and determined appropriate disposition codes.

A diagram of the receipt control operation may be seen in figure II.

Figure II. Receipt Control Operation


RECEIVE SCREENERS, H.H. QUEX., L.A.I.
SHIPMENT CHECKED AGAINST SUPERVISOR TRANSMITTAL SHEET
CASE REVIEWED FOR FINAL DISPOSITION
STATUS ENTERED IN LOG AND ON SCREENER
RE-ASSIGNMENT NECESSARY?
NO
PCF IN?
NO
CASE IS PUT IN PCF WAIT FILE UNTIL IT COMES IN
YES
CASE PUT IN REASSIGNMENT FILE AND FIELD DIRECTOR NOTIFIED
ENTERED IN LOG
WHEN RE-ASSIGNMENT CASE RESOLVED, LOG IS UPDATED
FILL OUT DU CARD TO SEND TO KEYPUNCH ON DAILY BASIS
PCF & ACCOMPANYING FORM PLACED IN PUPIL SURVEY FILE. NO PCF TAKEN BY PUPIL SURVEY DEPARTMENT UNTIL IT IS LOGGED IN.
CASE STORED FOR WEEKLY SHIPMENT TO RDI

Coding Items - All editors were trained and supervised by the RDI Field Coordinator. Since some interviews were conducted in Spanish, editors fluent in Spanish were available. Editing problem sheets were maintained noting the identification number of the material in question and the interpretation problem. The supervisor decided the outcome of unusual or unclear editing problems and periodically checked the quality of work done by the editors.

Editing involved a review of the Household Screener, the Household Questionnaire, and the LM&AI tests. Procedures focused on three areas of editing: consistency among responses and among forms from the same household; proper skip pattern or branching from one item to the next; and clear coding of responses to reduce errors in data entry.

Consistency - A unique identification number was given to each household using county, segment, and dwelling unit numbers (PSU-SEG-DU). All materials were referenced with this number. The editors ensured consistency on all materials in the household packets by attaching machine-duplicated labels to each form. Identification labels were color-coded for the subpopulations California, Texas, New York and the Remainder of the U.S.

In editing items, editors checked for consistency between responses to Screener and Household Questionnaires. For example, the household language indicated on the Screener was copied by interviewers to the Household Questionnaire. The two forms were checked against each other for accuracy. Editors also checked to see if responses "made sense" when considering

the respondents as a household unit. Variables considered were number and age of children, level of schooling in relationship to previous residence outside the U.S., and languages spoken in relationship to the origin and country of birth questions. Accurate recording of the selected children's person numbers on the LM&AI test answer sheets was also noted. Editors checked that tested children were the same as those marked as selected from the Screener Qestionnaire. Editors also checked for missing pages or missing forms.

Skip Pattern - Both the Screener and Household Questionnaire had complicated skip patterns. Branching patterns were most difficult on the Screener, where both eligible and ineligible household data were recorded. Ineligible respondents completed only four or five of the 31 items. Editors checked the pattern of responses and deleted responses that should have been skipped. The Field Coordinator made decisions in cases where the classification as an eligible household with an incomplete form or as an ineligible household was unclear.

Clarity of Responses - Several rules were developed and used to guide editors in clearly marking items that could otherwise confuse data entry clerks. These included marking "don't know", "refused", and "no response" items with "DK" or "MD" (missing data) so that blanks would be entered when no response was given. Editors also indicated appropriate entry codes when more than one response was marked per item. For example, if the circle

indicating male or female overlapped both codes, editors determined sex by gender or first name and clearly circled "M" or "F". When more than one language was coded on any of the language or descent items, editors clearly marked the first language indicated. The most frequent case was when English and Spanish were both recorded as the household language.

To assist data entry clerks in keying the correct number of fields per variable, editors added leading zeros to digits less than the maximum number allowed in the field. When occurring in the chosen response, editors also corrected numerical errors printed on the forms. Editors at Westat and RDI marked changes in red pen to differentiate from field supervisors' comments marked in green.

A major editing task was to provide numerical codes for open-ended responses. A sample of completed Screener and Household Questionnaires was selected and codes were developed for each open-ended item. These items were primarily language or nationality items. Once a code list was started, the editors added new codes as new responses were encountered. The supervising editor ensured that each new code was added to each editor's list to maintain consistency. The codes developed are listed in Appendix F.

Coding Disposition Codes - The back page of the Household Screener requested information regarding the outcome of the interview. Interviewers used result codes such as "vacant/not a dwelling unit", "Screener completed", and "unavailable during field period" to indicate the status of the respondent in terms of eligibility and the status of the questionnaire as completed or not. Result codes pertained to the Screener, the Household Questionnaire, and the Non-Interview Report Form (contained inside the Screener and used when a neighbor was contacted).

The result codes were to provide frequencies necessary for calculating the sample weights. During editing, however, it became apparent that a few interviewers had not understood the result codes and had misapplied them. Because the sample size was small, it was vitally important that every case be properly classified as an eligible or ineligible respondent and that every interview be properly coded as complete or incomplete. Since neighbor information was to be used in the weight adjustments, precise neighbor information about the respondent's household language and children's ages was needed.

It was decided not to use the result code information from the Screener but to develop a new set of disposition codes to be applied to all Screener and Household Questionnaires. RDI editors determined appropriateness of the of the Texas and California surveys and reviewed the appropriateness of the eligible, completed code applied to the New York and the Remainder of U.S. packets sent by Westat. Westat editors applied codes to the New York and Remainder of U.S. ineligible and neighbor information responses since they retained these materials at Westat. Having central office editors apply the disposition codes was the only way to ensure accurate, consistent classification of cases.

The coding system used for the Screener and Household Questionnaire is shown in Table II-14. Since the interviewers were instructed to make a maximum of three calls per household, the table shows how the codes related to possible outcomes for each attempt. Displaying the codes in this form allowed editors to clearly relate the codes to the result information on the back page of the Screener. Eligible, ineligible, and neighbor

respondents were categorized within the same system of codes. A more detailed discussion of the meaning and use of the disposition codes in determining sample weights is presented in sections 8.3 and 8.5 of RDI's final CESS report submitted under separate cover.

A disposition code was also developed to indicate the outcome of each LM&AI test. All of the LM&AI codes were determined by RDI editors, since eligible household survey packets contained all the tests. Codes were developed by examining a sample of packets and new codes were added to the list as editors reviewed the tests. Editors entered codes on each test answer sheet. Any discrepancies or problem cases were decided by the Field Coordinator.

Information to determine LM&AI disposition codes came from several sources: completion of the test items themselves; comments by the test administrator, on the cover of the answer sheet, regarding testing conditions or the child's performance during testing; the test packet envelope on which field supervisors indicated parental refusal to schedule a test, unavailability of the child during the testing period, or administration errors such as giving the wrong age level test. Table II-15 provides an explanation of each of the disposition code categories. The codes were used to determine complete and incomplete tests for proposed non-response weight adjustments.

Verification Procedures - RDI completed data entry tasks using Texas Instrument 770 intelligent terminals. The 770's are programmable key to tape data entry units. Their data entry features enhance

entry accuracy in ways not possible with conventional key punch equipment.

A primary feature was the ability to program the formats for each survey instrument to be entered. Each data entry format specified the

TABLE II-14. Scheme for Determining Screener and Household Questionnaire Disposition Codes.

Possible Outcome	Status of Household	Status of Interview		Disposition Code
		Screener	Household Questionnaire	
FIRST CALL				
(1) Respondent Contacted	Eligible	Complete	Complete	1
Respondent Contacted	Eligible	Complete	Incomplete	2
Respondent Contacted	Ineligible	Complete	Not Done	3
(2) Respondent Breakoff or Refused	Unknown	Incomplete	Not Done	4
(3) Vacant	Ineligible	Incomplete	Not Done	5
(4) Not a Dwelling Unit	Ineligible	Incomplete	Not Done	6
(5) Unavailable, Can't Contact	Unknown	n.a.	n.a.	n.a.
SECOND CALL				
(1) Respondent Contacted	Eligible	Complete	Complete	1
Respondent Contacted	Eligible	Complete	Incomplete	2
Respondent Contacted	Ineligible	Complete	Not Done	3
(2) Respondent Breakoff or Refused	Unknown	Incomplete	Not Done	4
(3) Neighbor Contacted and Indicated:				
Have Children - English Usually	Ineligible	Incomplete	Incomplete	8
Children Unknown - English Usually	Ineligible	Incomplete	Incomplete	8
No Children - Language Unknown	Ineligible	Incomplete	Incomplete	8
No Children - Other Language Usually	Ineligible	Incomplete	Incomplete	8
Have Children - Language Unknown	Unknown	n.a.	n.a.	n.a.
Have Children - Other Language Usually	Unknown	n.a.	n.a.	n.a.
Children Unknown - Other Language Usually	Unknown	n.a.	n.a.	n.a.
Children Unknown - Language Unknown	Unknown	n.a.	n.a.	n.a.
(4) Unavailable, Can't Contact	Unknown	n.a.	n.a.	n.a.
THIRD CALL				
(1) Respondent Contacted	Eligible	Complete	Complete	1
Respondent Contacted	Eligible	Complete	Incomplete	2
Respondent Contacted	Ineligible	Complete	Not Done	3
(2) Respondent Breakoff or Refused	Unknown	Incomplete	Not Done	4
(3) Unavailable, Can't Contact	Unknown	Incomplete	Incomplete	4
(4) Unavailable, Can't Contact but Neighbor Indicated:				
Have Children - Other Language Usually	Eligible	Incomplete	Incomplete	7
Children Unknown - Other Language Usually	Unknown	Incomplete	Incomplete	4
Have Children - Language Unknown	Unknown	Incomplete	Incomplete	4
Children Unknown - Language Unknown	Unknown	Incomplete	Incomplete	4

number of digits needed for each variable, the type of characters that could be entered (alphabetic, numeric, or combinations), and the range of digits allowable. Some fields were also programmed as required. Disposition codes and age level of LM&AI tests, for example, were required entries. Data for these and other variables had to be entered before the data entry clerk could proceed with other punches. The programmed formats also specified duplication of fields for forms of the same type (i.e., LM&AI tests). To ensure that the identification number on each record was correctly entered, the programs required entry of PSU-SEGMENT-DU numbers twice. Any time an incorrect digit was entered an audible sound alerted the operator to correct the error.

The programmed formats eliminated the need to follow conventional key punch verification procedures used with computer cards. The Data Entry Supervisor periodically checked the entry error rate of each data entry clerk. Rates were consistently below two percent of all strokes made.

In addition to the procedures for assuring data entry accuracy, several checks were made of the data tape after all records had been entered. Checks were made on a segment-by-segment basis, as well as an individual basis. To verify that all cases had been properly entered (i.e., no omissions, correct identification numbers), frequency counts by disposition codes were done for each segment. These marginals were performed for Texas and California eligible, ineligible, and neighbor information respondents and for eligible cases from New York and the Remainder of the U.S., Texas and California. Totals were compared against field supervisor summary reports, compiled from data collection reports. Discrepancies were used to identify cases on the data tape requiring editing. The New York

and Remainder of the U.S. totals for eligible households were checked against a listing of disposition code frequencies provided by Westat, based on their own receipt control logs. Some inconsistencies remained

TABLE II-15. LM&AI Disposition Code Categories

Category	Code	Category Definitions	Outcome
Completed test	1	The child responded correctly to enough items on the test to continue to the last item	Complete
Refused	2	Either parent or child refused to allow the test to be conducted	Incomplete
Breakoff	3	Either parent or child stopped the test after allowing it to start	Incomplete
Terminated	4	Test administrator stopped the test in accordance with the test directions after a given number of questions were incorrectly answered	Complete
Child over age	5	The child turned age 15 (beyond the testing range) after interviewing but prior to administering the test	n.a.
Handicapped	6	The child was either physically or emotionally unable to respond to the test	Incomplete
Not available during test period	7	The child did not keep testing appointments or was otherwise unavailable for testing after the parent had given consent	Incomplete
15-18 year old	8	Beyond the testing range but in the sample of selected children	n.a.
Cannot determine	9	No test was given but information was insufficient to determine the reason why a test was not given	Incomplete
Wrong age level test given	10	The child's age did not correspond to the level of test given and retesting could not be completed within the field period	Incomplete

and were attributed to inaccuracies in the field report tallies which were done by hand.

Checks of household data focused on internal consistency. For example, the number of people in each household was an item on the Screener; this was checked against the number of people actually listed on the Screener enumeration chart. Checks were also made on the basis of the disposition codes for the Screener, Household Questionnaire, and LM&AI tests. If the codes indicated completed instruments, the data tape was reviewed to ensure that the records were actually entered and properly matched for each person. The procedures ensured that all materials were properly entered and correctly identified.

A final determination of data entry accuracy was made after all entry, reformatting, and data editing were completed. Characters existing on the final data tape of selected children 5 through 18 years of age were compared to the actual responses on the Screener, Household Questionnaire, and LM&AI tests. An error rate of .35 percent (i.e., less than four incorrect entries for every 1,000 characters) was found for person record data for eligible, selected cases (NELB children).

Materials Management - Data was entered on TI 770 cassettes used for local data storage. Since instruments were entered according to programmed formats, packets had to be separated by type of questionnaire; LM&AI test answer sheets were separated by age level. The Data Entry Supervisor transmitted completed cassettes daily to data tapes maintained at the Control Data Corporation in Rockville, Maryland, CDC's interactive processing facility. The records on each cassette were listed and checked against the stack of survey forms entered on that cassette. Any mismatches were corrected; omitted forms were entered. All forms were then individually

stamped "entered" and returned to the proper envelopes so that all of the material for a household could be maintained together.

One problem in materials management was the correct processing of duplicated LM&AI tests. Due to testing inaccuracies in New York and Louisiana, several children had to be retested at the end of the data collection effort. Many of the original test forms had already been entered when the duplicates were received by BDI. To ensure accurate correction of the data tape, the Data Entry Supervisor was the only person allowed to handle the new tests. Software was developed to delete the original test records and replace them with the valid forms. The Supervisor checked that all tests were correctly substituted.

Reformatting - To create the CESS data base, survey information was reformatted from household records to person records and additional codes and sample weights were matched with appropriate person records. Items on the Screener Questionnaire were a mixture of household characteristics (i.e., usual household language, type of structure) and person characteristics (i.e., age per person, country of birth). The first step was to duplicate household item responses from the Screener for each person in the household and appended to the individual person response. Household Questionnaire information was then appended to each person record by matching identification numbers and duplicating responses for every household member. Mismatches were identified and PSU-SEGMENT-DU numbers were corrected.

LM&AI tests were scored and total scores were coded as LESA or non-LESA. Tests were reformatted to be the same length and the LM&AI information was appended to the Screener and Household Questionnaire person records. Appending the LM&AI was more difficult since

identification numbers included person number from the surveys as well as the tests. Several transcribing errors from the Screener to the test packet had to be corrected.

The sample weights were calculated and added to the master data file. Since the weighting procedures were not finalized until September 25, 1978, weights had to be recalculated in October. Previous weights were deleted and those corresponding to the final procedures were written on the data tape.

Other codes were also added to simplify data analysis runs. For example, a code for language group was added. The more than 60 codes for household language were reduced to two categories, Spanish and other non-English language (see Table II-16.). Membership in subpopulation groups (California, Texas, New York, and the Remainder of the U.S.) was coded to more quickly identify groups than if PSU numbers were used.

TABLE II-16. Language Group Definitions

Language Group	Response to S2*	Response to S3A**
Spanish	Spanish	English
	Spanish	Blank
	Spanish	Spanish
	Spanish	Other non-English
	Blank	Spanish
	English	Spanish
Other non-English	Other non-English	English
	Other non-English	Other non-English
	Other non-English	Blank
	Other non-English	Spanish
	Blank	Other non-English
	English	Other non-English

*Screener item S2: What language do people in this household usually speak at home?

**Screener item S3A: Do the people in this household often speak any other language here at home? (If YES) What is that language?

Finally, all of the data for selected children ages 5 through 18 were pulled off the master file and reformatted. Identifying information was placed on the first record and information from the Screener, Household Questionnaire, and LM&AI tests were arranged in the order of the items on the instruments. Data analysis on child characteristics was based on the reduced, reformatted file of selected children.

Definition and Verification of Variables - Special editing attention was given to selected variables essential for calculating weights accurately. These variables included:

- Screener and Household Questionnaire disposition code
- LM&AI test disposition code
- LESA/non-LESA code
- Language group (Spanish/other non-English) identification
- Sex
- Age

The disposition codes were reviewed and corrected during editing of the instruments and during verification of data entry procedures. The additional checking of the LM&AI test scores and LESA codes involved independently hand-scoring 10 instruments at each of the 10 age levels. No discrepancies with computer calculated total scores were found.

Editing language, sex, and age was complicated by the need for several decision rules to accurately and consistently categorize possible contradictory information. Each of these variables appeared in several places on the survey and test instruments. The contractors, in conjunction with the government, developed the following guidelines for deriving accurate age, sex, and language codes for each selected child.

Language Group - In order to adjust the CESS sample weights to the distribution of cases in the Survey of Income and Education, conducted by the Bureau of the Census in 1976, the language usually spoken by the household had to be determined. The proper language was first determined by comparing household language usage items on the Screener and Household Questionnaires. Language was reported in the Screener items S2 (household's usual language), S3A (other language spoken often in the household), S15 (person's usual language), and S17 (other language often spoken by the person). On the Household Questionnaires, language was reported in items Box C (from S2 or S3A), H23 (child's usual language to siblings), and H24 (child's usual language to best friend). The packets were reviewed if Box C did not agree with S2 or S3A or if more than two language codes appeared among any of the items. Key punch and editor errors were corrected on the data tape for S2 and S3A. Some cases remained with more than two valid languages among the several items.

Item S2 and S3A responses were then used to determine the Spanish or other non-English language classification. The decision rules are shown in Table II-I6. Only two language groups were used because the sample was not designed for further breakdown. Editing resulted in the assurance that every selected 5 to 18 year old child on the data tape had the proper language group code.

Sex - The second variable used in the weight adjustment to the SIE distribution was sex. Sex was reported on the LM&AI tests and on the Screener. When these did not agree or both were missing, an editor reviewed the forms to identify key-punch errors and/or determine sex by gender of first name. An editor particularly familiar with Spanish names was used. Upon completion of the editing, all selected children were correctly

identified as either male or female.

Age - The editing of age was most difficult since there were so many ways to determine age from the instruments. Five variables provided age information (date of birth and age from the Screener, date of birth and age from the LM&AI, and LM&AI test level). RDI edited data from all selected children where some mismatch among these variables occurred. Checking was done by a computer program to identify inconsistencies and visually by two supervisory staff to determine correct age. The data tape editing produced a new computed age variable, known correct for all selected cases.

The following were the decision rules used to resolve discrepancies between the five age variables in order to derive an accurate "computed age." In general, the computed age was taken as age level on the LM&AI test for selected 5 to 14 year old children and as age on the Screener for 15 to 18 year olds. Specifically, the decision rules were:

(a) If Screener age was blank, no LM&AI data was available, and explainable key-punch errors were not found, age was determined from Screener date of birth;

(b) If Screener age was not equal to LM&AI age and:

- o the child's birthday was in March, April, May, or June and the LM&AI age was one year greater than the Screener age, then no change was made in Screener age or in LM&AI age, but computed age was taken as the LM&AI age;
- o all other variables agreed with LM&AI age, then Screener age was changed to match the LM&AI age;

- o all other variables agreed with Screener age, then correct LM&AI age was noted on an editor's print-out but was not changed on the data tape;
- o all other variables did not agree, using any two that did agree and looking for obvious or explainable key punch errors (e.g., a "1" that looked like a "7", inverted two-digit number, off-line on the Screener enumeration chart, etc.), then computed age was determined by the two or more that did agree;
- o all other variables did not agree to the extent that judgement was needed to determine which age was most likely correct, then LM&AI age was used, on the assumption that the child was the most likely person to know his/her own age and was likely to be truthful about his/her own age. (Note: not <u>always</u> the case when time of test administration was close to birthdate and the child reported being older);

(c) If Screener age matched LM&AI date of birth and the child was 5 in age but 4 according to date of birth, the case was deleted as a selected child, the LM&AI test was deleted, and the computed age was determined to be 4 years of age.

In applying these decision rules, the actual instruments were reviewed to determine the correct age. In the cases where judgment was needed

it was assumed that the child accurately reported his or her age to the test administrator. On the Screener enumeration chart, benefit of the doubt was given to the accurate recording of date of birth, assuming inaccurate calculation of age by the interviewer. When editing was completed, Screener age and LM&AI age for selected children agreed in all cases except for those children having birthdays between selection and testing.

Data Analysis Procedures - Upon completion of data entry and editing, a data tape of members of all eligible households, including eligible, selected children, was available for use in completing data analysis tasks. The data analysis tasks included (1) production of information concerning the data collection efforts (i.e., the sample yield), (2) scoring the LM&AI test to be used as the criterion for identifying LESA children, (3) application of disposition codes showing the eligibility of each respondent to be in the study and whether or not the survey instruments and tests were completed, (4) calculation of final response rates, (5) calculation of non-response and subsampling sample weights, and (6) calculation of weighted NELB and LESA counts. Each of these tasks is reviewed below with a presentation of relevant findings and summary statistics. Analysis tasks pertaining to Pupil Survey responses do not relate to the first Congressional mandate concerning LESA counts and are, therefore, not discussed.

Field Report Tables - Since RDI received all of the eligible, completed survey instruments, summaries of the sample yield for completed Screener and Household Questionnaires could be made for all four subpopulations from the edited data tape. RDI produced working documents with frequency counts by segment of the number of completed Screener and completed Household Questionnaires (Screener disposition code 1) for California, Texas, New York and the Remainder of the U.S. Westat had done a similar count for its field report for New York and the Remainder of the U.S. based on its receipt control procedure counts

of returned questionnaires. The two tallies of the disposition code 1 cases differed in only three instances, one each from three segments. The discrepancies resulted from the review of all completed packets sent to RDI and the revision of disposition codes if necessary. RDI also produced frequency counts of the other screener disposition codes by segment for California and Texas. These counts provided detailed data on the yield from each segment in terms of eligibility of households and response rate for completing the Screener and Household Questionnaires. The frequencies of the disposition codes by subpopulation are presented under the section Disposition Codes on page 77. (Also see Tables II-22, II-23, II-24, and II-26).

Frequency counts were also produced in working documents for the numbers of eligible and selected children. Since these children could only be from selected households with completed Screener and Household Questionnaires, RDI did tallies for California, Texas, New York, and the Remainder of the U.S. from the master data tape. Table II-17 compares the number of expected and identified NELB households and corresponding NELB children by subpopulation. Table II-18 shows the number of eligible and selected children by age groups 5 through 14 and 15 through 18.

LM&AI Scoring and Rescoring - The LM&AI tests consisted of ten separate instruments, one for each age between 5 and 14 years. RDI developed computer programs to score each test, record the total score, compare it to the appropriate LESA cut-off score per age level,

and record a LESA or non-LESA code. There were 1,909 tests scored.

TABLE II-17. Sample Design and Yield for NELB Households and NELB Children

Category	California	Texas	New York	Remainder of U.S.	Total
NELB HOUSEHOLDS					
Expected	424	332	349	1,020	2,125
Complete	411	324	248	769	1,752
NELB CHILDREN (5-18)					
Expected	634	498	524	1,533	3,189
Complete	538	695	408	1,312	2,953

TABLE II-18. Eligible and Selected Children by Subpopulation

Category	California	Texas	New York	Remainder of U.S.	Total
5-14 YEAR OLD CHILDREN					
Eligible	541	697	417	1,238	2,893
Selected	422	533	327	988	2,270
15-18 YEAR OLD CHILDREN					
Eligible	170	223	110	449	952
Selected	116	162	81	324	683
TOTAL					
Eligible	711	920	527	1,687	3,845
Selected	538	695	408	1,312	2,953

A preliminary distribution of LESA and non-LESA children was provided by age level. Table II-19 shows the distribution of LESAs by age using the original scoring procedures, prior to the final editing

of the data base. Because of the unexpected distribution of LESA children, the government requested the prime contractor, who developed the test, to reconsider the scoring procedures. Item frequencies for each test were provided to the prime contractor to aid in the scoring procedures review. Other analyses of test characteristics were considered beyond the scope of RDI's work and none was done.

Table II-19. Unweighted LESA Percentages

Age Level	Initial Score Distribution		Revised Score Distribution	
	% LESA	No. of LESA	% LESA	No. of LESA
5	83.1	148	71.0	125
6	83.0	176	70.9	151
7	80.0	168	72.9	151
8	82.8	168	82.1	165
9	81.7	165	68.7	134
10	71.5	133	82.6	152
11	73.9	136	55.7	102
12	63.7	114	72.9	129
13	72.2	127	68.0	119
14	42.1	83	66.7	132
All Ages	73.6%	1,418 *	71.2%	1,360 **

* As of 8/30/78, the total number of completed tests was 1,927. Final editing of the disposition codes was in progress to determine which tests were completed and which were not. Of the 1,927 tests, 73.6% or 1,418 were coded as LESA.

** After completion of editing, the total number of completed tests was 1,909. Using the revised scoring procedures, 1,360 of the 1,909 children or 71.2% were classified as LESAs.

It was determined that one of the oral production items was producing unreliable results because of administration and scoring difficulties. Especially among respondents ages 10-14 years, responses tended to be more numerous

and more readily stated. The test reviewers recommended the deletion of one oral production item per test and the application of new LESA/non-LESA cut-off scores (see documentation of the LM&AI submitted under separate cover, for a detailed discussion of test development procedures). Revised scoring procedures were provided to RDI.

The RDI scoring program was revised and all tests were rescored using the new procedures. New total scores and LESA classification codes were added to the master data tape. The original scores and codes were deleted to avoid confusion. The distribution of LESA children based on the revised classification procedure is shown in Table II-19. Tables II-20 and II-21 document the original and revised cut-off scores and the correct item responses by age level of test.

Table II-20. Initial and Revised LM&AI Scoring Procedures

Scoring Information	Age Level of Test									
	5	6	7	8	9	10	11	12	13	14
Original Cut-off*	35	48	39	57	65	63	56	59	67	56
Revised Cut-off*	13.54	26.36	39.06	38.51	43.10	49.03	41.39	46.32	48.32	52.31
Deleted Item	23	35	29	22	19	21	20	19	20	22

* A score at or below the cut-off score was categorized as LESA.

Table II-21

Codes for Correct Answers to LM&AI Test Items

Item No.	Age Level of Test*									
	5	6	7	8	9	10	11	12	13	14
1	1	1	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1	1
3	2	1	1	1	1	1	1	1	1	1
4	3	1	1	1	1	1	1	1	1	1
5	2	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1
7	2	1	2	1	2	1	1	1	1	1
8	1	1	1	1	2	3	1	3	3	3
9	1	1	3	2	3	1	3	3	1	1
10	total	1	3	1	total	3	2	3	3	3
11	total	1	2	2	total	2	3	2	2	3
12	total	1	1	total	2	3	total	total	total	total
13	2	1	1	total	2	3	total	total	total	total
14	2	1	3	2	1	2	1	2	3	3
15	2	1	total	1	1	total	3	3	1	3
16	1	2	total	1	1	total	2	3	2	2
17	2	1	total	3	total	2	1	total	3	2
18	1	2	1	2	total	1	total	total	total	1
19	2	3	2	2	total(D)	total	total	total(D)	total	1
20	total	1	1	total	2	total	total(D)	4	total(D)	total
21	total	2	2	total	3	total(D)	3	2	2	total
22	total	2	1	total(D)	1	3	1	3	1	total(D)
23	total(D)	2	1	3	3	1	1	2	1	2
24		1	1	3	2	2	3	3	2	4
25		1	2	2	3	1	3	2	1	1
26		total	total	3	2	2	3	1	4	1
27		total	total	1	3	3	2	1	4	4
28		total	total	2	1	1	3	1	4	1
29		2	total(D)	1	2	2	1	4	1	2
30		2	2	1	1	1	1	2	3	2
31		2	2	3	3	2	2	2	2	2
32		total	3	3	5	2	1	3	1	3
33		total	3	3	4	1	3	4	1	4
34		total	2	1	3	3	5	3	3	3
35		total(D)	3	1	2	5	4	6	6	1
36			3	1	1	4	1	4	4	2
37			1	2	3	2	4	2	2	3
38			2		2	3	3	5	5	6
39			3		1	1	4	1	1	4
40			3		1	4	4	2	2	2
41			2		1	3	2	1	3	3
42			2		2	2	1	1	1	1
43					1	3	1	2	2	3
44					3	1	1	2	4	2
45						2	1	1	2	4
46						1	3	3	4	4
47						2	4	2	4	3
48						1		1	3	4
49								3	2	4
50									1	2
51									1	1
52									3	1
53									2	3
54										2

* The number of items varied by age level of test. After the last item on a given age level test, the column was left blank. The "D" indicates the deleted item when the test was rescored.

Additional analyses of LM&AI test characteristics among CESS sample respondents were not conducted. Subscale scoring, score distributions by child characteristics, and item-total characteristics were considered by NIE beyond the scope of work of the RDI data analysis tasks.

Disposition Codes - The CESS sample design necessitated six weight adjustments. Three of the adjustments were based on responses to questionnaires used in the LESA Count phase of the study. The instruments were the CESS Household Screener, the Household Questionnaire, and the LM&AI test. Each questionnaire represented a different stage of interviewing. At each stage, two determinations were important to the weighting procedure: (1) whether the responding household or child was eligible or ineligible to participate in the study and (2) whether the instrument was completed or not completed by the respondent. These two conditions were indicated by "disposition codes" assigned to each instrument by RDI and Westat editors.

Editors determined appropriate codes by reviewing the responses on each instrument and noting comments provided by the interviewer. To facilitate editing, one set of disposition codes was used to represent the outcomes of the Household Screener and the Household Questionnaire. A second set of disposition codes was applied to the LM&AI test. Tables II-22 and II-23 present the disposition codes and their corresponding designations of completeness of the interview form and eligibility of the respondent.

As shown in Table II-22, vacant houses (code 5) and structures other than dwelling units (code 6) were excluded from the sample of potentially eligible households. Among households eligible for screening (codes 1, 2,

3, 4, 7, 8), cases with codes 1, 2 and 3 were considered to have complete Screeners. Codes 1, 2 and 7 indicated households eligible to be in the CESS study (i.e., to complete a Household Questionnaire), but only code 1 households actually completed Household Questionnaires.

For the LM&AI tests, only children 5 through 14 years of age were eligible to take the test. The disposition codes in Table II-23 indicate that 15 to 18 year old children (codes 5 and 8) and handicapped children (code 6) were excluded as ineligible for testing. Cases with codes 1 or 4 were counted as having completed a test.

TABLE II-22. Household Screener and Household Questionnaire Disposition Codes

Code	R or N*	Category**	Completeness		Household Eligibility
			Screener	Household Questionnaire	
1	R	Selected household	Complete	Complete	Eligible
2	R	Selected household, incomplete HHQ	Complete	Incomplete	Eligible
3	R	Non-selected household	Complete	Incomplete	Ineligible
4	R or N	SCR-breakoff, refusal, unavailable during field period, unable to enter structure, cannot contact R; NIRF indicated "unknown children and/or unknown language"	Incomplete	Incomplete	Unknown
5	-	Vacant	Incomplete	Incomplete	Ineligible
6	-	Not a dwelling unit	Incomplete	Incomplete	Ineligible
7	N	NIRF indicated eligible household, "children-other language"	Incomplete	Incomplete	Eligible
8	N	NIRF indicated ineligible household, "English only and/or no children"	Incomplete	Incomplete	Ineligible

* Respondent (R) or Neighbor (N) contacted

** SCR: Household Screener Questionnaire
HHQ: Household Questionnaire
NIRF: Non-Interview Response Form

The following sections indicate how the disposition codes were used to determine the response rates for each instrument as well as the non-response weight adjustments for the sample.

Response Rates - Response rates were calculated on the basis of the disposition codes. Note that the following response rates were determined after completion of data collection efforts and differ slightly from those reported during the field work. The response rates reflect operational definitions of "completed" and "eligible" cases corresponding to the weighting procedures. The frequencies of cases by disposition code and subpopulation and the corresponding response rates are shown in Tables II-24 to II-27.

The Household Screener response rates were generally lowest of the three instruments. The number of completed cases, indicated by disposition codes 1, 2 and 3, was compared to the number of potentially responding households, represented by codes 1, 2, 3, 4, 7 and 8. At the screening prior to interviewing, all listed addresses represented potential respondents, except for vacant structures and structures that were not dwelling units (codes 5 and 6). The screener response rate for the entire sample was 76.19 percent.

The national Household Questionnaire response rate was 93.75 percent. The number of completed Household Questionnaires (code 1) was compared to the number of households determined to be eligible for participation in the CESS study (codes 1, 2 and 7); these were households having children between 5 and 18 years old and speaking a language other than English. The high response rate indicates that almost all of the households identified as eligible were successfully interviewed.

TABLE II-23. LM&AI Disposition Codes

Code	Category	Completeness	Eligibility
1	Completed test	Complete	Eligible
2	Refused to be tested	Incomplete	Eligible
3	Breakoff by child or family member	Incomplete	Eligible
4	Terminated by test administrator due to predetermined pattern of several incorrect responses	Complete	Eligible
5	Child over-age; turned 13 years old between assignment and administration of test; incorrect age initially recorded; test not given	Incomplete	Ineligible
6	Handicap or language problem prevented testing	Incomplete	Ineligible
7	Not available during testing period	Incomplete	Eligible
8	15-18 years old; test not given	Incomplete	Ineligible
9	Test not given, reason unknown	Incomplete	Eligible
10	Wrong age level test given	Incomplete	Eligible

The frequencies by disposition code and subpopulation for the LM&AI test are shown in Table II-26. The number of completed tests was compared to the number of children eligible for testing, excluding handicapped and 15 to 18 year old children. The response rate for the LM&AI was 84.58 percent for the entire sample (see Table II-27). Note that the two main reasons for non-response were refusal of the family to allow testing after the child was selected to be in the study and inability to schedule a test during the testing period.

TABLE II 24. Household Screener and Household Questionnaire Disposition Codes by Subpopulation

Code	Category *	California	Texas	New York	Balance of U.S.	Total
1	SCR complete; HHQ complete	293	390	232	737	1,652
2	SCR complete; HHQ incomplete	8	10	11	24	53
3	SCR complete; Ineligible Household	3,482	1,747	2,734	15,690	23,653
4	SCR incomplete; Ineligible Household	311	190	269	1,308	2,078
5	Vacant	140	160	191	1,225	1,716
6	Not a dwelling unit	46	36	17	287	386
7	SCR incomplete; Probable eligible household	23	11	5	18	57
8	SCR incomplete; Probable ineligible household	728	260	848	3,954	5,709
	Total	5,031	2,804	4,307	23,243	35,385

* SCR: Household Screener Questionnaire
HHQ: Household Questionnaire

TABLE II-25. Screener and Household Questionnaire Response Rates

Response Rate Components*	California	Texas	New York	Remainder of U.S.	Total
Total Completed SCRs (Codes 1, 2, 3)	3,783	2,147	2,977	16,451	25,358
Total Possible SCRs (Codes 1, 2, 3, 4, 7, 8)	4,845	2,608	4,099	21,731	33,283
SCR Response Rate	78.08%	82.32%	72.63%	75.70%	76.19%
Total Complete HHQs (Code 1)	293	390	232	737	1,652
Total Possible HHQs (Codes 1, 2, 7)	324	411	248	779	1,762
HHQ Response Rate	90.43%	94.89%	93.55%	94.61%	93.75%

* SCR: Household Screener Questionnaire;

TABLE II-26

LM&AI Disposition Codes by Subpopulation

Code	Category	California	Texas	New York	Remainder of U.S.	Total
1	Completed Test	277	415	230	811	1,733
2	Refused to be tested	7	26	28	66	127
3	Breakoff	2	0	0	2	4
4	Terminated	33	45	49	49	176
5	Child over age	3	3	1	1	8
6	Handicapped	1	0	2	5	8
7	Not available during testing period	51	26	14	29	120
8	15-18 years old; not tested	115	160	81	324	680
9	Test not given; reason unknown	35	12	1	17	65
10	Wrong age level test given	14	8	2	8	32
	Total	538	695	408	1,312	2,953

TABLE II-27

LM&AI Response Rates

Response Rate Components	California	Texas	New York	Remainder of U.S.	Total
Total Completed LM&AI Tests (Codes 1, 4)	310	460	279	860	1,909
Total Possible Tests (Codes 1, 2, 3, 4, 7, 9, 10)	419	532	324	982	2,257
LM&AI Response Rate	73.99%	86.47%	86.11%	87.58%	84.58%

Weighting Procedures - Six weight adjustments were made to derive estimates of totals and proportions in the CESS data base. The procedures for the six adjustments were developed by Westat. The Westat technical paper may be found in Appendix E. Of the six adjustments, the first was based on the number of listed addresses compared to the number of actual dwelling units. Three of the adjustments were non-response adjustments for the three stages of interviewing. An adjustment was also made for subsampling children, since all children in a household were not selected for subsequent participation in the study. A maximum of two children 5 to 14 years old and one child 15 to 18 years old was selected per household. Finally, the weights were adjusted by age, sex, language, and subpopulation distribution to approximate the respective distribution of cases from the Survey of Income and Education (SIE) study conducted by the Bureau of Census in 1976. A non-technical summary of the procedures is provided below.

Westat derived a basic sampling weight (BSW) for each segment in the sample. The basic weights were calculated from the probability of

selection of each segment according to the sample design. Westat adjusted the basic weights for the number of originally listed addresses in a segment in relation to the number later identified as vacant or not dwelling units. The adjusted basic sampling weight ($BSW^{(1)}$) for each segment was provided by Westat and the five subsequent adjustments were calculated by RDI using the $BSW^{(1)}$ Values.

The Household Screener non-response adjustment was applied to the $BSW^{(1)}$ values. Adjustment ratios were found by comparing the weighted number of housing units (eliminating vacant houses and those that were not dwelling units) to the weighted number of completed Household Screener Questionnaires. To calculate the ratios, segments were differentiated within the study's four subpopulations: Texas, California, New York, and the Remainder of the U.S. Density and Standard Metropolitan Statistical Area SMSA characteristics, used by Westat in the sample design, were used in the weighting procedures to determine four groups per subpopulation: SMSA, low density; non-SMSA, low density; SMSA, high density; and non-SMSA, high density. Sixteen non-response adjustment ratios were thus determined by adding the weights of appropriate cases (using $BSW^{(1)}$ values) across segments within a county for each of the four groups within each of the four subpopulations. The 16 screener adjustment ratios are found in Table II-28. The $BSW^{(1)}$ of each segment was multiplied by the appropriate adjustment ratio to produce the first non-response adjusted weight, $BSW^{(2)}$, for each segment.

The Household Questionnaire non-response adjustment was computed in a similar manner. The adjustment ratios were found by comparing

the weighted number of completed Screener Questionnaires to the weighted number of completed Household Questionnaires, summed over segments within SMSA-density groups within subpopulations. Sixteen non-response adjustment ratios were computed using the same SMSA, density, and subpopulation categories described above (see Table II-29). The $BSW^{(2)}$ for each segment was multiplied by the appropriate adjustment ratio to produce the second non-response adjusted weight, $BSW^{(3)}$, for each segment. The $BSW^{(3)}$ weights were attached to each household record.

Table II-28. Screener Non-Response Adjustment Ratios

Subpopulation	Low Density		High Density	
	SMSA	NonSMSA	SMSA	NonSMSA
California	1.2599	1.3125	1.3766	1.1830
Texas	1.2117	1.3391	1.2379	1.0077
New York	1.3301	1.3301	1.4107	1.4107
Remainder of U.S.	1.3470	1.1632	1.3068	1.3046

Table II-29. Household Questionnaire Non-Response Adjustment Ratios

Subpopulation	Low Density		High Density	
	SMSA	NonSMSA	SMSA	NonSMSA
California	1.1268	1.0000	1.1039	1.0780
Texas	1.1295	1.0000	1.0566	1.0000
New York	1.1153	1.1153	1.0661	1.0661
Remainder of U.S.	1.0306	1.0000	1.0784	1.0060

The next adjustment increased, on a household-by-household basis, the sample weights to represent non-selected children. The number of 5 to 14 year old children listed in each household was counted and compared to the number of selected 5 to 14 year old children (either one or two) in that household. The adjustment ratio of possible to selected children was then multiplied by the household weight ($BSW^{(3)}$) to produce the first basic child weight ($BCW^{(1)}$) for each selected 5 to 14 year old child. The same procedure was used to calculate an adjustment ratio for 15 to 18 year old children. Since only one 15 to 18 year old child could be selected, the household weight $BSW^{(3)}$ was multiplied by the number of 15 to 18 year old children in the household to produce a $BCW^{(1)}$ for each selected 15 to 18 year old child. The adjustment ratios varied by household from 1.0 to 4.0.

The fifth adjustment pertained to non-response on the language assessment instrument, the LM&AI test. Only 5 to 14 year olds were eligible to take the test. This non-response adjustment, therefore, applied only to the $BCW^{(1)}$ for 5 to 14 year old children. Non-response adjustment ratios were computed in the same manner as those for the Screener and Household Questionnaire non-response adjustments. The ratios were found by comparing the weighted number of selected 5 to 14 year old children to the weighted number of selected 5 to 14 year olds with completed LM&AI tests, summed over segments within SMSA-density groups within subpopulations. Sixteen non-response adjustment ratios were computed using the SMSA, density, and subpopulation groups previously defined. The ratios may be found in Table II-30. The $BCW^{(1)}$ for each selected 5 to 14 year old child was multiplied by the appropriate adjustment ratio to produce a $BCW^{(2)}$.

Finally, the $BCW^{(2)}$ values for 5 to 14 year olds and the $BCW^{(1)}$ values for 15 to 18 year olds were adjusted according to the distribution of respondents to the 1976 SIE study. Weighted and unweighted frequency counts were provided to Westat by age, sex, language, and subpopulation. Two language groups were used: Spanish and Other Non-English Language. Westat computed ratios to adjust $BCW^{(1)}$ and $BCW^{(2)}$ values by age and sex to reproduce the SIE estimates. Four age groups were used: 5-8, 9-11, 12-14, and 15-18 years old. A differentiation in adjustments was made for age in all cases except for the Other Non-English Language groups in Texas and California where only sex was distinguished. The adjustment ratios are presented in Table II-31. The appropriate ratio was multiplied by the $BCW^{(1)}$ and $BCW^{(2)}$ values to produce the final weight, $BCW^{(3)}$, for all selected children. The weighted NELB and LESA counts are tabulations of these final $BCW^{(3)}$ values.

Table II-32 provides a summary of the magnitude of the weights produced at each adjustment stage. The range and the sum of the weights is also shown.

Table II-30. LM&AI Non-Response Adjustment Ratios

Subpopulation	Low Density		High Density	
	SMSA	NonSMSA	SMSA	NonSMSA
California	1.7103	1.6667	1.2571	2.4821
Texas	1.5213	1.0769	1.1602	1.2730
New York	1.2272	1.2272	1.1549	1.1549
Remainder of U.S.	1.2385	1.1605	1.0607	1.1843

TABLE II-31. Correction Factors for Correcting Age and Sex Distribution

Subpopulation	Age							
	5-8		9-11		12-14		15-18	
	M	F	M	F	M	F	M	F
Spanish								
California	1.6803	1.5512	1.3596	1.4694	1.6143	2.0216	1.5447	2.6218
Texas	0.7065	1.0700	1.1405	0.7459	1.3218	0.9580	1.5467	1.7046
New York	1.0063	1.0821	0.6051	2.5248	0.6162	0.8818	1.1003	0.8837
Remainder of U.S.	1.3625	1.2409	1.3655	0.8718	1.4382	1.3022	0.7762	1.2450
Other Non-English								
California	2.6157	0.9620	2.6157	0.9620	2.6157	0.9620	2.6157	0.9620
Texas	56.8603	2.5037	56.8603	2.5037	56.8603	2.5037	56.8603	2.5037
New York	1.0453	1.8235	2.0154	0.8567	1.4346	1.1024	1.4978	2.2672
Remainder of U.S.	2.1990	1.0560	1.3932	1.4208	1.9126	1.0910	2.4267	1.7383

TABLE II-32 CESS Sample Weights

Weight	Range		Sum of Weights
	Minimum	Maximum	
$BSW^{(1)}$	65.0	19,118.0	2,282,075
$BSW^{(2)}$	76.9	25,752.0	2,979,982
$BSW^{(3)}$	82.9	26,540.5	3,178,169
$BCW^{(1)}$ (15-18 year olds)	82.9	53,081.0	1,036,590
$BCW^{(2)}$ (5-14 year olds)	140.8	49,304.6	3,048,452
$BCW^{(1)}$ for 15-18 and $BCW^{(2)}$ for 5-14 year olds	82.9	53,081.0	4,085,042
$BCW^{(3)}$ (5-18 year olds)	112.7	72,322.8	6,182,434*

* Estimated number of NELB children between 5 and 18 years old

Procedures for Estimating Variance - Coefficients of variance (CVs) were computed for each of the 26 categories of children for which NIE requested LESA and NELB counts. Fifteen source specified characteristics listed in Table II-33 were needed to produce the 26 categories for the whole U.S. and by subpopulation. The set of 15 source specified characteristics among NELB children was represented as "X". The set of 15 source specified characteristics among NELB children who were also LESAs was represented by "Y". The proportion of LESA among NELB children was represented by "Y/X" for each of the 15 source specified characteristics. This X, Y, and Y/X notation is used below in the abbreviated presentation of the Westat procedures for calculating the CVs. The Westat formulas are provided in Appendix E.

Westat distinguished the counties selected to be in the study according to the sample design on the basis of their design probability of selection. Counties having an associated probability of 1.0 were referred to as Certainty counties. Those with an associated probability of less than 1.0 were labeled Non-certainty counties. Different initial sets of procedures for calculating CVs were used for Certainty and Non-certainty counties.

For the 51 Non-certainty counties, Westat identified 15 groups of two or more counties each. In calculating a weighted sum of squares for each of the 15 groups for each source specified characteristic of interest, the child weights ($BCW^{(3)}$ values) for children in each county were summed for each characteristic. The deviations of the county sums from the group mean were found, squared, and summed to produce weighted

TABLE II-33. Source Specified Characteristics of NELB (X) Children and NELB-LESA (Y) Children

Characteristic Number	Source Specified Characteristic
1	Any eligible, selected child (NELB)
2	5-6 years old
3	7-8 years old
4	9-11 years old
5	12-14 years old
6	Spanish background
7	Other non-English language background
8	Spanish background, 5-6 years old
9	Other non-English language background, 5-6 years old
10	Spanish background, 7-8 years old
11	Other non-English language background, 7-8 years old
12	Spanish background, 9-11 years old
13	Other non-English language background, 9-11 years old
14	Spanish background, 12-14 years old
15	Other non-English language background, 12-14 years old

sums of squares representing the contribution of the Non-certainty groups of variance. The cross-products of X and Y deviations were summed to produce the contributions of the Non-certainty groups to covariance.

Corresponding values were found for X, Y, and Y/X for the 15 source specified characteristics among Certainty counties. Westat identified 24 Certainty counties, each representing a group. In

order to calculate the contributions of a Certainty county (group) to variance and covariance, its segments in that county were split into two "artificial" counties using an odd-even split method. Child weights ($BCW^{(3)}$ values) were then summed for children within each of the two artificial counties. Group variances and covariances were computed for the artificial counties using the differences between the odd and even county sums. The resulting values represented the contribution of the Certainty groups to variance and covariance.

In the remaining calculations, Certainty and Non-certainty groups were not differentiated. The variances and covariances at the group level were summed to the subpopulation level, and the subpopulation values were added to derive national variance and covariance values.

The relvariances for X and Y were derived by finding the ratios between the subpopulation and national variances and the corresponding squared sums of the contributing weights. The relvariances for the proportions of LESAs, Y/X, were calculated by first finding the ratios of the subpopulation and national covariances to the corresponding products of the sums of child weights for X and Y. The relvariance for any particular proportion was then defined as the sum of the relvariance for X and the relvariance for Y minus twice the relative covariance for Y/X (i.e., minus twice the corresponding ratio of covariance to the product of the corresponding X and Y sums). The reported coefficients of variance are the square roots of the relvariances.*

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* As indicated in Volume I, the resultant CVs are biased to an unknown extent. For this reason, they are omitted. (See Sec. 6, Vo. 1)

Results - In response to the first Congressional mandate upon which the CESS study was based, the data analysis procedures produced the following information about the CESS data base and the estimates of NELB and LESA children. The results are preliminary in that much additional information can be obtained from the data base to further examine characteristics of NELB and LESA children.

NELB and LESA Counts and CVs - NIE specified LESA and NELB counts for 26 groups as the primary set of counts to be derived. The LESA counts were found using the $BCW^{(3)}$ values. The counts were limited to 5 through 14 year old children, as specified by the study design, since the language proficiency of 15 to 18 year old children was not measured.

Tables II-34 and II-35 present the NELB and LESA counts and indications of their reliability for the 26 groups. For the whole U.S., the estimated number of 5 to 14 year old NELB children is 3,120,000, a 95 percent level of confidence. The national estimate of 5 to 14 year old LESA children is 2,409,000 at a 95 percent confidence level.

Characteristics of Respondents - Considerably more information may be compiled on the CESS study respondents. Over 20 items on the Screener and 35 items on the Household Questionnaire were presented to eligible, selected respondents to collect data regarding language usage and educational experiences of selected children. To date, only a minimal number of marginals have been computed, since these tasks were generally beyond the scope of project activities. After

examination of the distributions of responses, decisions will be made on recoding language-related items into appropriate language groups and computing other marginals that would be useful in evaluating and supporting data analysis results.

VI. CONCLUSION

Congress presented three mandates (see Appendix A) to the Department of Health, Education and Welfare to collect data on bilingual education. The Children's English and Services Study, conducted under contract with the National Institute of Education, provides the requested data in terms of population estimates on Non-English Language Background (NELB) and Limited English Speaking Ability (LESA) persons. The study was a cooperative venture involving a Consortium of Contractors, a national Review Group of Advisors (see Volume I), and major participation by the staff of National Institute of Education and National Center for Education Statistics.

Table II-34

NELB and LESA Counts with LESA Proportions

Category	NELB Count	LESA Count	LESA Proportion			
			%	CV	Minimum	Maximum
Whole U.S.	3,812,000	2,410,000	63.2	6.10	55.49	70.90
Subpopulation						
California	855,000	594,000	69.5	8.35	57.39	81.11
Texas	630,000	438,000	69.5	8.48	57.80	81.42
New York	608,000	458,000	76.9	10.68	60.45	93.28
Remainder of U.S.	1,718,000	908,000	52.9	11.44	40.77	64.96
Age						
5-6 year olds	722,000	484,000	67.0	6.81	57.86	76.11
7-8 year olds	780,000	534,000	68.4	8.62	56.61	80.20
9-11 year olds	1,099,000	652,000	59.3	10.63	46.68	71.90
12-14 year olds	1,210,000	740,000	61.1	6.71	52.98	69.33
Language						
Spanish	2,390,000	1,744,000	73.0	3.73	67.53	78.41
Other non-English	1,422,000	665,000	46.8	12.27	35.30	58.24
Spanish						
5-6 year olds	467,000	352,000	75.3	5.57	66.93	83.73
7-8 year olds	486,000	390,000	80.2	4.15	73.55	86.85
9-11 year olds	690,000	462,000	67.0	7.54	56.86	77.05
12-14 year olds	747,000	540,000	72.4	5.96	63.73	80.98
Other non-English						
5-6 year olds	255,000	132,000	51.7	17.27	33.87	69.60
7-8 year olds	294,000	144,000	48.9	22.01	27.38	70.46
9-11 year olds	409,000	190,000	46.4	20.36	27.48	65.24
12-14 year olds	463,000	199,000	43.0	13.65	31.29	54.78
Spanish						
California	654,000	502,000	76.7	3.47	71.41	82.04
Texas	602,000	438,000	72.8	5.11	63.34	80.20
New York	364,000	316,000	86.9	4.64	78.78	94.92
Remainder of U.S.	770,000	488,000	63.4	11.13	49.28	77.49
Other non-English						
California	201,000	93,000	46.0	36.85	12.10	79.91
New York	245,000	152,000	62.0	24.08	32.15	91.83
Remainder of U.S.*	977,000	421,000	43.1	14.90	30.26	55.95

*For other non-English language by subpopulation, Texas was included with the Remainder of the U.S.

Table II-35

Calculation of NELB and LESA Counts

Category	NELB Totals		LESA Totals		
	Unweighted	Weighted	Unweighted		Weighted
	N	N	N	%	N
Whole U.S.	1909	3,812,000	1360	71.2	2,409,000
Subpopulations					
California	310	855,000	233	75.2	594,000
Texas	460	630,000	324	70.4	438,000
New York	279	608,000	229	82.1	468,000
Remainder of U.S.	860	1,718,000	574	66.7	908,000
Age					
5-6 year olds	389	722,000	276	71.0	484,000
7-8 year olds	408	780,000	316	77.5	534,000
9-11 year olds	562	1,099,000	388	69.0	652,000
12-14 year olds	550	1,210,000	380	69.1	740,000
Language					
Spanish	1482	2,390,000	1117	75.4	1,744,000
Other non-English	427	1,422,000	243	56.9	665,000
Spanish					
5-6 year olds	304	467,000	233	76.6	352,000
7-8 year olds	320	486,000	257	80.3	390,000
9-11 year olds	430	690,000	312	72.6	462,000
12-14 year olds	428	747,000	315	73.6	540,000
Other non-English					
5-6 year olds	85	255,000	43	50.6	132,000
7-8 year olds	88	294,000	59	67.0	144,000
9-11 year olds	132	409,000	76	57.6	190,000
12-14 year olds	122	463,000	65	53.3	199,000
Spanish					
California	276	654,000	215	77.9	502,000
Texas	456	602,000	323	70.8	438,000
New York	226	364,000	200	88.5	316,000
Remainder of U.S.	524	770,000	379	72.3	488,000
Other non-English					
California	34	201,000	18	52.9	93,000
New York	53	245,000	29	54.7	152,000
Remainder of U.S.*	340	977,000	196	57.6	421,000

*For other non-English language by subpopulation, Texas was included with the Remainder of the U.S.

CHILDREN'S ENGLISH AND SERVICES STUDY

VOLUME II
APPENDICES

FEBRUARY 1979

SUBMITTED TO:

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APPENDICES (Assembled in a separate volume)

A. ESEA TITLE VII, BILINGUAL EDUCATION ACT, AS AMENDED IN 1974.

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APPENDIX A

ESEA TITLE VII, BILINGUAL EDUCATION ACT, AS AMENDED IN 1974

1974 ACT

BILINGUAL EDUCATIONAL PROGRAMS

81 Stat. 816; 84 Stat. 151. 20 USC 880b.

SEC. 105. (a)(1) Title VII of the Elementary and Secondary Education Act of 1965 is amended to read as follows:

"TITLE VII—BILINGUAL EDUCATION

"SHORT TITLE

Bilingual Education Act. 20 USC 880b note.

"SEC. 701. This title may be cited as the 'Bilingual Education Act'.

"POLICY; APPROPRIATIONS

20 USC 880b.

"SEC. 702. (a) Recognizing—

"(1) that there are large numbers of children of limited English-speaking ability;

"(2) that many of such children have a cultural heritage which differs from that of English-speaking persons;

"(3) that a primary means by which a child learns is through the use of such child's language and cultural heritage;

"(4) that, therefore, large numbers of children of limited English-speaking ability have educational needs which can be met by the use of bilingual educational methods and techniques; and

"(5) that, in addition, children of limited English-speaking ability benefit through the fullest utilization of multiple language and cultural resources.

the Congress declares it to be the policy of the United States, in order to establish equal educational opportunity for all children (A) to encourage the establishment and operation, where appropriate, of educational programs using bilingual educational practices, techniques, and methods, and (B) for that purpose, to provide financial assistance to local educational agencies, and to State educational agencies for certain purposes, in order to enable such local educational agencies

to develop and carry out such programs in elementary and secondary schools, including activities at the preschool level, which are designed to meet the educational needs of such children; and to demonstrate effective ways of providing, for children of limited English-speaking ability, instruction designed to enable them, while using their native language, to achieve competence in the English language.

"(b)(1) Except as is otherwise provided in this title, for the purpose of carrying out the provisions of this title, there are authorized to be appropriated $133,000,000 for the fiscal year ending June 30, 1974; $135,000,000 for the fiscal year ending June 30, 1975; $140,000,000 for the fiscal year ending June 30, 1976; $150,000,000 for the fiscal year ending June 30, 1977; and $160,000,000 for the fiscal year ending June 30, 1978. Appropriation.

"(2) There are further authorized to be appropriated to carry out the provisions of section 721(b)(3) $6,750,000 for the fiscal year ending June 30, 1974; $7,250,000 for the fiscal year ending June 30, 1975; $7,750,000 for the fiscal year ending June 30, 1976; $8,750,000 for the fiscal year ending June 30, 1977; and $9,750,000 for the fiscal year ending June 30, 1978. Post, p. 507.

"(3) From the sums appropriated under paragraph (1) for any fiscal year—

"(A) the Commissioner shall reserve $16,000,000 of that part thereof which does not exceed $70,000,000 for training activities carried out under clause (3) of subsection (a) of section 721, and shall reserve for such activities 33⅓ per centum of that part thereof which is in excess of $70,000,000; and

"(B) the Commissioner shall reserve from the amount not reserved pursuant to clause (A) of this paragraph such amounts as may be necessary, but not in excess of 1 per centum thereof, for the purposes of section 732. Post, p. 510.

"DEFINITIONS; REGULATIONS

"SEC. 703. (a) The following definitions shall apply to the terms used in this title: 20 USC 880b-1.

"(1) The term 'limited English-speaking ability', when used with reference to an individual, means—

"(A) individuals who were not born in the United States or whose native language is a language other than English, and

"(B) individuals who come from environments where a language other than English is dominant, as further defined by the Commissioner by regulations:

and, by reason thereof, have difficulty speaking and understanding instruction in the English language.

"(2) The term 'native language', when used with reference to an individual of limited English-speaking ability, means the language normally used by such individuals, or in the case of a child, the language normally used by the parents of the child.

"(3) The term 'low-income' when used with respect to a family means an annual income for such a family which does not exceed the low annual income determined pursuant to section 103 of title I of the Elementary and Secondary Education Act of 1965. Ante, p. 483.

"(4)(A) The term 'program of bilingual education' means a program of instruction, designed for children of limited English-speaking ability in elementary or secondary schools, in which, with respect to the years of study to which such program is applicable—

"(i) there is instruction given in, and study of, English and, to the extent necessary to allow a child to progress effectively through

the educational system, the native language of the children of limited English-speaking ability, and such instruction is given with appreciation for the cultural heritage of such children, and, with respect to elementary school instruction, such instruction shall, to the extent necessary, be in all courses or subjects of study which will allow a child to progress effectively through the educational system; and

"(ii) the requirements in subparagraphs (B) through (E) of this paragraph and established pursuant to subsection (b) of this section are met.

English-speaking children, enrollment.

"(B) A program of bilingual education may make provision for the voluntary enrollment to a limited degree therein, on a regular basis, of children whose language is English, in order that they may acquire an understanding of the cultural heritage of the children of limited English-speaking ability for whom the particular program of bilingual education is designed. In determining eligibility to participate in such programs, priority shall be given to the children whose language is other than English. In no event shall the program be designed for the purpose of teaching a foreign language to English-speaking children.

"(C) In such courses or subjects of study as art, music, and physical education, a program of bilingual education shall make provision for the participation of children of limited English-speaking ability in regular classes.

"(D) Children enrolled in a program of bilingual education shall, if graded classes are used, be placed, to the extent practicable, in classes with children of approximately the same age and level of educational attainment. If children of significantly varying ages or levels of educational attainment are placed in the same class, the program of bilingual education shall seek to insure that each child is provided with instruction which is appropriate for his or her level of educational attainment.

Application.

"(E) An application for a program of bilingual education shall be developed in consultation with parents of children of limited English-speaking ability, teachers, and, where applicable, secondary school students, in the areas to be served, and assurances shall be given in the application that, after the application has been approved under this title, the applicant will provide for participation by a committee composed of, and selected by, such parents, and, in the case of secondary schools, representatives of secondary school students to be served.

Definitions.

"(5) The term 'Office' means the Office of Bilingual Education.

"(6) The term 'Director' means the Director of the Office of Bilingual Education.

"(7) The term 'Council' means the National Advisory Council on Bilingual Education.

Model programs.

"(b) The Commissioner, after receiving recommendations from State and local educational agencies and groups and organizations involved in bilingual education, shall establish, publish, and distribute, with respect to programs of bilingual education, suggested models with respect to pupil-teacher ratios, teacher qualifications, and other factors affecting the quality of instruction offered in such programs.

"(c) In prescribing regulations under this section, the Commissioner shall consult with State and local educational agencies, appropriate organizations representing parents and children of limited English-speaking ability, and appropriate groups and organizations representing teachers and educators involved in bilingual education.

"PART A—FINANCIAL ASSISTANCE FOR BILINGUAL EDUCATION PROGRAMS

"BILINGUAL EDUCATION PROGRAMS

"SEC. 721. (a). Funds available for grants under this part shall be used for— Grants. 20 USC 880b-7.

"(1) the establishment, operation, and improvement of programs of bilingual education;

"(2) auxiliary and supplementary community and educational activities designed to facilitate and expand the implementation of programs described in clause (1), including such activities as (A) adult education programs related to the purposes of this title, particularly for parents of children participating in programs of bilingual education, and carried out, where appropriate, in coordination with programs assisted under the Adult Education Act, and (B) preschool programs preparatory and supplementary to bilingual education programs; 80 Stat. 1191; Post, p. 576.

"(3)(A) the establishment, operation, and improvement of training programs for personnel preparing to participate in, or personnel participating in, the conduct of programs of bilingual education and (B) auxiliary and supplementary training programs, which shall be included in each program of bilingual education, for personnel preparing to participate in, or personnel participating in, the conduct of such programs; and 20 USC 1201 note.

"(4) planning, and providing technical assistance for, and taking other steps leading to the development of, such programs.

"(b)(1) A grant may be made under this section only upon application therefor by one or more local educational agencies or by an institution of higher education, including a junior or community college, applying jointly with one or more local educational agencies (or, in the case of a training activity described in clause (3)(A) of subsection (a) of this section, by eligible applicants as defined in section 723). Application. Post, p. 508. Each such application shall be made to the Commissioner at such time, in such manner, and containing such information as the Commissioner deems necessary, and

"(A) include a description of the activities set forth in one or more of the clauses of subsection (a) which the applicant desires to carry out; and

"(B) provide evidence that the activities so described will make substantial progress toward making programs of bilingual education available to the children having need thereof in the area served by the applicant.

"(2) An application for a grant under this part may be approved only if— Approval.

"(A) the provision of assistance proposed in the application is consistent with criteria established by the Commissioner, after consultation with the State educational agency, for the purpose of achieving an equitable distribution of assistance under this part within the State in which the applicant is located, which criteria shall be developed by his taking into consideration (i) the geographic distribution of children of limited English-speaking ability, (ii) the relative need of persons in different geographic areas within the State for the kinds of services and activities described in subsection (a), (iii) with respect to grants

to carry out programs described in clauses (1) and (2) of subsection (a) of section 721, the relative ability of particular local educational agencies within the State to provide such services and activities, and (iv) with respect to such grants, the relative numbers of persons from low-income families sought to be benefitted by such programs;

"(B) in the case of applications from local educational agencies to carry out programs of bilingual education under clause (1) of subsection (a) of section 721, the Commissioner determines that not less than 15 per centum of the amounts paid to the applicant for the purposes of such programs shall be expended for auxiliary and supplementary training programs in accordance with the provisions of clause (3)(B) of such subsection and section 723;

Post, p. 508.

"(C) the Commissioner determines (i) that the program will use the most qualified available personnel and the best resources and will substantially increase the educational opportunities for children of limited English-speaking ability in the area to be served by the applicant, and (ii) that, to the extent consistent with the number of children enrolled in nonprofit, nonpublic schools in the area to be served whose educational needs are of the type which the program is intended to meet, provision has been made for participation of such children; and

"(D) the State educational agency has been notified of the application and has been given the opportunity to offer recommendations thereon to the applicant and to the Commissioner.

"(3)(A) Upon an application from a State educational agency, the Commissioner shall make provision for the submission and approval of a State program for the coordination by such State agency of technical assistance to programs of bilingual education in such State assisted under this title. Such State program shall contain such provisions, agreements, and assurances as the Commissioner shall, by regulation, determine necessary and proper to achieve the purposes of this title, including assurances that funds made available under this section for any fiscal year will be so used as to supplement, and to the extent practical, increase the level of funds that would, in the absence of such funds be made available by the State for the purposes described in this section, and in no case to supplant such funds.

"(B) Except as is provided in the second sentence of this subparagraph, the Commissioner shall pay from the amounts authorized for these purposes pursuant to section 702 for each fiscal year to each State educational agency which has a State program submitted and approved under subparagraph (A) such sums as may be necessary for the proper and efficient conduct of such State program. The amount paid by the Commissioner to any State educational agency under the preceding sentence for any fiscal year shall not exceed 5 per centum of the aggregate of the amounts paid under this part to local educational agencies in the State of such State educational agency in the fiscal year preceding the fiscal year in which this limitation applies.

Ante, p. 501.

"(c) In determining the distribution of funds under this title, the Commissioner shall give priority to areas having the greatest need for programs assisted under this title.

"INDIAN CHILDREN IN SCHOOLS

20 USC 880b-2.

"SEC. 722. (a) For the purpose of carrying out programs under this part for individuals served by elementary and secondary schools operated predominantly for Indian children, a nonprofit institution or organization of the Indian tribe concerned which operates any

such school and which is approved by the Commissioner for the purposes of this section may be considered to be a local educational agency as such term is used in this title.

"(b) From the sums appropriated pursuant to section 702(b), the Commissioner is authorized to make payments to the Secretary of the Interior to carry out programs of bilingual education for children on reservations served by elementary and secondary schools for Indian children operated or funded by the Department of the Interior. The terms upon which payments for such purpose may be made to the Secretary of the Interior shall be determined pursuant to such criteria as the Commissioner determines will best carry out the policy of section 702(a). Payments. Ante, p. 503.

"(c) The Secretary of the Interior shall prepare and, not later than November 1 of each year, shall submit to the Congress and the President an annual report detailing a review and evaluation of the use, during the preceding fiscal year, of all funds paid to him by the Commissioner under subsection (b) of this section, including complete fiscal reports, a description of the personnel and information paid for in whole or in part with such funds, the allocation of such funds, and the status of all programs funded from such payments. Nothing in this subsection shall be construed to relieve the Director of any authority or obligation under this part. Annual report to Congress and President.

"(d) The Secretary of the Interior shall, together with the information required in the preceding subsection, submit to the Congress and the President, an assessment of the needs of Indian children with respect to the purposes of this title in schools operated or funded by the Department of the Interior, including those State educational agencies and local educational agencies receiving assistance under the Johnson-O'Malley Act (25 U.S.C. 452 et seq.) and an assessment of the extent to which such needs are being met by funds provided to such schools for educational purposes through the Secretary of the Interior. Assessment of needs of Indian children, submittal to Congress and President. 49 Stat. 1458.

"TRAINING

"SEC. 723. (a)(1) In carrying out the provisions of clauses (1) and (3) of subsection (a) of section 721, with respect to training, the Commissioner shall, through grants to, and contracts with, eligible applicants, as defined in subsection (b), provide for— 20 USC 880b-9. Ante, p. 506.

"(A)(i) training, carried out in coordination with any other programs training auxiliary educational personnel, designed (I) to prepare personnel to participate in, or for personnel participating in, the conduct of programs of bilingual education, including programs emphasizing opportunities for career development, advancement, and lateral mobility, (II) to train teachers, administrators, paraprofessionals, teacher aides, and parents, and (III) to train persons to teach and counsel such persons, and (ii) special training programs designed (I) to meet individual needs, and (II) to encourage reform, innovation, and improvement in applicable education curricula in graduate education, in the structure of the academic profession, and in recruitment and retention of higher education and graduate school facilities, as related to bilingual education; and

"(B) the operation of short-term training institutes designed to improve the skills of participants in programs of bilingual education in order to facilitate their effectiveness in carrying out responsibilities in connection with such programs.

"(2) In addition the Commissioner is authorized to award fellowships for study in the field of training teachers for bilingual edu- Fellowships.

cation. For the fiscal year ending June 30, 1975, not less than 100 fellowships leading to a graduate degree shall be awarded under the preceding sentence for preparing individuals to train teachers for programs of bilingual education. Such fellowships shall be awarded in proportion to the need for teachers of various groups of individuals with limited English-speaking ability. For each fiscal year after June 30, 1975, and prior to July 1, 1978, the Commissioner shall report to the Committee on Education and Labor of the House of Representatives and the Committee on Labor and Public Welfare of the Senate on the number of fellowships in the field of training teachers for bilingual education which he recommends will be necessary for that fiscal year.

Report to congressional committees.

Stipends.

"(3) The Commissioner shall include in the terms of any arrangement described in paragraphs (1) and (2) of subsection (a) of this section provisions for the payment, to persons participating in training programs so described, of such stipends (including allowances for subsistance and other expenses for such persons and their dependents) as he may determine to be consistent with prevailing practices under comparable federally supported programs.

"(4) In making grants or contracts under this section, the Commissioner shall give priority to eligible applicants with demonstrated competence and experience in the field of bilingual education. Funds provided under grants or contracts for training activities described in this section to or with a State educational agency, separately or jointly, shall in no event exceed in the aggregate in any fiscal year 15 per centum of the total amount of funds obligated for training activities pursuant to clauses (1) and (3) of subsection (a) of section 721 in such year.

Ante, p. 506.

"(5) An application for a grant or contract for preservice or inservice training activities described in clause (A)(i)(I) and clause (A)(ii)(I) and in subsection (a)(1)(B) of this section shall be considered an application for a program of bilingual education for the purposes of subsection (a)(4)(E) of section 703.

Ante, p. 504.

"Eligible applicants."

"(b) For the purposes of this section, the term 'eligible applicants' means—

"(1) institutions of higher education (including junior colleges and community colleges) which apply, after consultation with, or jointly with, one or more local educational agencies;

"(2) local educational agencies; and

"(3) State educational agencies.

"PART B—ADMINISTRATION

"OFFICE OF BILINGUAL EDUCATION

Establishment.
20 USC 880b-10.

"SEC. 731. (a) There shall be, in the Office of Education, an Office of Bilingual Education (hereafter in this section referred to as the 'Office') through which the Commissioner shall carry out his functions relating to bilingual education.

"(b)(1) The Office shall be headed by a Director of Bilingual Education, appointed by the Commissioner, to whom the Commissioner shall delegate all of his delegable functions relating to bilingual education.

"(2) The Office shall be organized as the Director determines to be appropriate in order to enable him to carry out his functions and responsibilities effectively.

Report to Congress and President.

"(c) The Commissioner, in consultation with the Council, shall prepare and, not later than November 1 of 1975, and of 1977, shall submit to the Congress and the President a report on the condition of bilingual education in the Nation and the administration and operation of this

title and of other programs for persons of limited English-speaking ability. Such report shall include— Contents.

"(1) a national assessment of the educational needs of children and other persons with limited English-speaking ability and of the extent to which such needs are being met from Federal, State, and local efforts, including (A) not later than July 1, 1977, the results of a survey of the number of such children and persons in the States, and (B) a plan, including cost estimates, to be carried out during the five-year period beginning on such date, for extending programs of bilingual education and bilingual vocational and adult education programs to all such preschool and elementary school children and other persons of limited English-speaking ability, including a phased plan for the training of the necessary teachers and other educational personnel necessary for such purpose;

"(2) a report on and an evaluation of the activities carried out under this title during the preceding fiscal year and the extent to which each of such activities achieves the policy set forth in section 702(a);

"(3) a statement of the activities intended to be carried out during the succeeding period, including an estimate of the cost of such activities;

"(4) an assessment of the number of teachers and other educational personnel needed to carry out programs of bilingual education under this title and those carried out under other programs for persons of limited English-speaking ability and a statement describing the activities carried out thereunder designed to prepare teachers and other educational personnel for such programs, and the number of other educational personnel needed to carry out programs of bilingual education in the States and a statement describing the activities carried out under this title designed to prepare teachers and other educational personnel for such programs; and

"(5) a description of the personnel, the functions of such personnel, and information available at the regional offices of the Department of Health, Education, and Welfare dealing with bilingual programs within that region.

"NATIONAL ADVISORY COUNCIL ON BILINGUAL EDUCATION

"SEC. 732. (a) Subject to part D of the General Education Provisions Act, there shall be a National Advisory Council on Bilingual Education composed of fifteen members appointed by the Secretary, one of whom he shall designate as Chairman. At least eight of the members of the Council shall be persons experienced in dealing with the educational problems of children and other persons who are of limited English-speaking ability, at least one of whom shall be representative of persons serving on boards of education operating programs of bilingual education. At least three members shall be experienced in the training of teachers in programs of bilingual education. At least two members shall be persons with general experience in the field of elementary and secondary education. At least two members shall be classroom teachers of demonstrated teaching abilities using bilingual methods and techniques. The members of the Council shall be appointed in such a way as to be generally representative of the significant segments of the population of persons of limited English-speaking ability and the geographic areas in which they reside. Establishment. 20 USC 880b-11. Post, p. 575. Membership.

"(b) The Council shall meet at the call of the Chairman, but, notwithstanding the provisions of section 446(a) of the General Education Provisions Act, not less often than four times in each year.

84 Stat. 172; 86 Stat. 326. 20 USC 1233e.

"(c) The Council shall advise the Commissioner in the preparation of general regulations and with respect to policy matters arising in the administration and operation of this title, including the development of criteria for approval of applications, and plans under this title, and the administration and operation of other programs for persons of limited English-speaking ability. The Council shall prepare and, not later than November 1 of each year, submit a report to the Congress and the President on the condition of bilingual education in the Nation and on the administration and operation of this title, including those items specified in section 731(c), and the administration and operation of other programs for persons of limited English-speaking ability.

Duties.

Report to Congress and President.

Ante, p. 509.

Personnel procurement.

"(d) The Commissioner shall procure temporary and intermittent services of such personnel as are necessary for the conduct of the functions of the Council, in accordance with section 443, of the General Education Provisions Act, and shall make available to the Council such staff, information, and other assistance as it may require to carry out its activities effectively.

Post, p. 575.

"PART C—SUPPORTIVE SERVICES AND ACTIVITIES

"ADMINISTRATION

20 USC 880b-12.

"SEC. 741. (a) The provisions of this part shall be administered by the Assistant Secretary, in consultation with—

"(1) the Commissioner, through the Office of Bilingual Education; and

"(2) the Director of the National Institute of Education, notwithstanding the second sentence of section 405(b)(1) of the General Education Provisions Act;

86 Stat. 328. 20 USC 1225.

in accordance with regulations.

"(b) The Assistant Secretary shall, in accordance with clauses (1) and (2) of subsection (a), develop and promulgate regulations for this part and then delegate his functions under this part, as may be appropriate under the terms of section 742.

Infra.

"RESEARCH AND DEMONSTRATION PROJECTS

Bilingual education research.

"SEC. 742. (a) The National Institute of Education shall, in accordance with the provisions of section 405 of the General Education Provisions Act, carry out a program of research in the field of bilingual education in order to enhance the effectiveness of bilingual education programs carried out under this title and other programs for persons of limited English-speaking ability.

Competitive contracts.

"(b) In order to test the effectiveness of research findings by the National Institute of Education and to demonstrate new or innovative practices, techniques, and methods for use in such bilingual education programs, the Director and the Commissioner are authorized to make competitive contracts with public and private educational agencies, institutions, and organizations for such purpose.

"(c) In carrying out their responsibilities under this section, the Commissioner and the Director shall, through competitive contracts with appropriate public and private agencies, institutions, and organizations—

"(1) undertake studies to determine the basic educational needs and language acquisition characteristics of, and the most effective

conditions for, educating children of limited English-speaking ability;

"(2) develop and disseminate instructional materials and equipment suitable for use in bilingual education programs; and

"(3) establish and operate a national clearinghouse of information for bilingual education, which shall collect, analyze, and disseminate information about bilingual education and such bilingual education and related programs.

"(d) In carrying out their responsibilities under this section, the Commissioner and the Director shall provide for periodic consultation with representatives of State and local educational agencies and appropriate groups and organizations involved in bilingual education.

"(e) There is authorized to be appropriated for each fiscal year prior to July 1, 1978, $5,000,000 to carry out the provisions of this section.". Appropriations.

(2)(A) The amendment made by this subsection shall be effective upon the date of enactment of this Act, except that the provisions of part A of title VII of the Elementary and Secondary Education Act of 1965 (as amended by subsection (a) of this section) shall become effective on July 1, 1975, and the provisions of title VII of the Elementary and Secondary Education Act of 1965 in effect immediately prior to the date of enactment of this Act shall remain in effect through June 30, 1975, to the extent not inconsistent with the amendment made by this section. Effective date. 20 USC 880b note. Ante, p. 505. 81 Stat. 816; 84 Stat. 151. 20 USC 880b.

(B) The National Advisory Council on Bilingual Education, for which provision is made in section 732 of such Act, shall be appointed within ninety days after the enactment of this Act. 20 USC 880b-11 note. Ante, p. 505.

(b) Section 703(a) of title VII of such Act is amended by adding at the end thereof the following: "other programs for persons of limited English-speaking ability."

"(8) The term 'other programs for persons of limited English-speaking ability' when used in sections 731 and 732 means the program authorized by section 708(c) of the Emergency School Aid Act and the programs carried out in coordination with the provisions of this title pursuant to section 122(a)(4)(C) and part J of the Vocational Education Act of 1963, and section 306(a)(11) of the Adult Education Act, and programs and projects serving areas with high concentrations of persons of limited English-speaking ability pursuant to section 6(b)(4) of the Library Services and Construction Act.". Ante, p. 504. 88 Stat. 360. 20 USC 1607. Post, p. 607. Post, p. 578. Post, p. 609.

STATUTE OF LIMITATIONS

SEC. 106. Title VIII of the Elementary and Secondary Education Act of 1965 is amended by inserting after section 803 the following new section: 79 Stat. 57; 81 Stat. 816; 84 Stat. 152. 20 USC 881.

"STATUTE OF LIMITATIONS ON REFUND OF PAYMENTS

"SEC. 804. No State or local educational agency shall be liable to refund any payment made to such agency under this Act (including title I of this Act) which was subsequently determined to be unauthorized by law, if such payment was made more than five years before such agency received final written notice that such payment was unauthorized.". 20 USC 884. Ante, p. 488.

DROPOUT PREVENTION PROJECTS

SEC. 107. (a) Section 807(c) of the Elementary and Secondary Education Act of 1965 is amended by inserting before the period at the end thereof the following: ", and each of the five succeeding fiscal years, except that no funds are authorized to be appropriated for obligation during any year for which funds are available for obligation for carrying out part C of title IV". 84 Stat. 152. 20 USC 887.

(b) The amendments made by this section shall be effective on and after July 1, 1975. Effective date. 20 USC 887 note.

APPENDIX B

INITIAL CONTACT LETTER WITH CHIEF STATE SCHOOL OFFICERS

Sample letter

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

WASHINGTON, D.C. 20208

SAMPLE LETTER

Honorable Carolyn Warner
Superintendent of Public Instruction
State Department of Education
Phoenix, Arizona 85007

Dear Superintendent Warner:

I am writing to you on behalf of agencies in the Education Division of the Department of Health, Education, and Welfare pursuant to my authority in the Education Amendments of 1974 to coordinate data collection and research efforts in bilingual education. These agencies will be conducting a study entitled the Children's English and Services Study in the Spring semester of the 1977-78 school year.

I am asking for your cooperation in the conduct of this study by urging that you recommend support for the study to schools in your State. The study has been coordinated with and recommended for support by the Bilingual Studies Task Force of the Council of Chief State School Officers' Committee on Evaluation and Information Systems (CEIS) and by a larger review team representing the State Education Agencies.

This study is part of the needs assessment called for in the 1974 Amendments to the Bilingual Education Act, Title VII, ESEA. The assessment will be included in an addendum to a mandated report of the Commissioner of Education to Congress and the President. This important study is also the cornerstone of the Department's new plans for research in bilingual education. Because this study is so important, we may want an opportunity to recontact some schools in the future that are selected for participation now.

The data collection burden among individual schools is expected to be very modest. Additional information about the study and specifics related to your cooperation are contained in the enclosures. If you wish to have more information about the study, please contact Dr. J. Michael O'Malley, the NIE Project Officer (202) 254-7940 or Mr. Leslie Silverman, the NCES Project Officer (202) 245-3397.

Sincerely,

Mary F. Berry,
Assistant Secretary for Education

cc: CEIS Coordinator

Enclosures

APPENDIX C

SUPERVISOR'S INTERVIEW

SUPERVISOR'S INTERVIEW

Date_____ City/State_____

Supervisor_____

Interviewer_____

1. How many PSU's/Segments are you responsible for?

_____ PSU's _____Segments

2. How many interviewers and how many test administrators do you supervise?

_____interviewers _____test administrators

3. Have you had to use any trouble shooters?

_____yes _____no

If Yes, Why?

4. Are interviewers experiencing any difficulty completing the screener or household questionnaires because of:

a. Language barriers

_____Yes, quite often

_____Very infrequently (no more than ¼ of the time)

_____Other (s) (please specify)

_____Yes, ½ of the time

_____Almost no difficulty at all

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b. Unavailability of household member 16 or older.

_____ Yes, quite often

_____ Very infrequently (no more than ¼ of the time)

_____ Yes, ½ of the time

_____ Almost no difficulty at all

_____ Other(s) (please specify)

5. Have you been able to verify 10% of each interviewers work?

_____ yes _____ no

If yes, ask to go over the verification log and some verification forms.

6. How are test administrators receiving their assignments:

_____ always from supervisors

_____ always from interviewers

_____ % from supervisors

_____ % from interviewers (fill in % ages)

7. Are TAs able to contact the home 24 hours after the child has been identified?

_____ Yes, always

_____ About ½ of the time

_____ Yes, at least 75% of the time

_____ Infrequently, less than 25% of the time

If ½ or less than 25% of the time, ask why is this the case?

8. Are test administrators having any difficulty administering the tests?

_____ Yes _____ No

If Yes, what kinds of problems are they having?

_____ scheduling (describe below)

_____ availability of test (describe below)

_____ other(s)
Please specify and describe below.

9. Have you been able to review the first 5 tests each TA administered using the answer sheet review checklist?

_____ Yes _____ No _____Some

If Yes, a. Ask to go over those sheets with the supervisor

b. Ask what problems administering the test have your TA's encountered? (Use a blank answer sheet review checklist and discuss each item. Make notes here.)

If No, Ask why not?

_____ no tests completed to date

_____ no time, too many other responsibilities

_____ didn't know I was supposed to

_____ others (specify) and describe below

10. We would like to know how data collection is progressing and how manageable your work has been to date? Will you please share with me your views on: a. How smoothly field work is going?
b. How manageable your work has been and
c. What the home office can do to help you?

a.

b.

c.

APPENDIX D

TEST ADMINISTRATION MONITORING CHECKLIST

GUIDELINES FOR USE OF THE TEST ADMINISTRATION

MONITORING CHECKLIST

General

For the observation during monitoring you should have with you the Examiner's Test Administrator's Booklet and a copy of the test that will be used. As you record the occurrence of an error on the chart make a notation (in the Examiner's Manual for the oral section - on the test for the written section) using the numbers of items in the left hand column of the chart. That means if a test administrator (TA) defines a word for the child during the written part of the test you would enter a frequency mark on the chart and write the number 4 on the test booklet above the word she/he defined (see attached example pages).

In this way you will be able to discuss the specific errors made with the TA after the observation. DON'T DISCUSS ANYTHING IN THE HOME. TALK WITH THE TA PRIVATELY ELSEWHERE.

Item #1 Introduction/Establishing Rapport

From the time you and the TA arrive, he or she is expected to make the child and the household member(s) present feel comfortable. It is essential to spend time making the child feel at ease and establish a relaxed atmosphere for testing.

As observer, you should consider the time from arrival at the home until testing begins as the period for establishing rapport. As the TA gets himself or herself and the child organized for actual testing, you can complete Item #1.

Item #2 During the Testing

There are several rules of administration that the TA is expected to follow rigidly. The observer should pay strict attention to the TA's compliance with these rules. The observer should familiarize himself or herself with the rules for administration of the test being given. Note on the chart provided each error made as it occurs. We want to know how often each error is made. Therefore, you make a notation each time the error occurs. Thus you will have a frequency count, by error, for each infraction of rules listed in the left hand column of the chart. If errors occur that do not appear on the chart, please make a note and keep a frequeney tally in the space provided.

Item #3 The Test Setting (to be completed when testing is over)

a. Test administrators have been asked to try to find a quiet place away from other family members to administer the test. We would like to know if TA's are able to do this. Since there are many possible places in a home where testing might occur, this is an open-ended item. We would like you to write in a very brief description, i.e., child's room, dining room, corner of living room, etc.

b. Test administrators have been asked to try to administer the test with no other persons present. Therefore, we would like to know if this is happening.

c. The child's ability to concentrate on the test is always an important factor in testing. One of the reasons TA's have been asked to identify a quiet spot for the test administration is to eliminate unnecessary distractions. We would like to know if this is possible.

Item #4 Finishing Testing

Just as they were instructed to establish rapport with the child and with household members at the beginning of the testing session, TA's have been asked to finish the testing in a particular way. They are to thank the child for her/his cooperation and for "trying hard"; they have been asked to reassure the child that no one will know the results of the test (teacher, principal, parents) and that the test will not affect her/his grades. Parents, if present, should be given the same assurances. Neither parent (s) or child should be told how many items the child completed correctly.

Item #5 Discontinuing the Test (to be completed at the time of discontinuation or at the end of the observation.

Under certain prescribed circumstances the TA is instructed to discontinue the test. Familiarize yourself with rules for the age you are observing. During the testing session you should be on the lookout for the necessity to stop testing. If the test should have been discontinued but was not - indicate that in item 5 and note in the test booklet or Examiners Manual the point at which the test should have been discontinued. You will discuss with the test administrator later the rules he or she should have observed.

If test is appropriately discontinued indicate that in item #5

Date _____

City/State _____

Observer _____

Child's First Name _____ Sex _____ Age _____

Introduction/Establishing Rapport

_____ no attempt to establish rapport with child or household member present.

_____ little attempt to establish rapport with child or household member present.

_____ spends some time establishing rapport with child or household member present.

_____ spends too much time establishing rapport with child or household member present.

During the testing

a. Use frequency counts	Oral	Written
1. Misreads test instructions - minor errors		
2. Misreads test instructions - major errors		
3. Rewords or paraphrases test instructions		
4. Define words for child		
5. Reads written items for child		
6. Helps or prompts child (when no prompting is allowed)		
7. Translates test items or instructions for child		
8. Speaks to child in language other than English during the testing		
9 Gives tests in incorrect sequence		
10. Omits items		

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	Oral	Written
11. Does not adhere to rule for length of exposure to words or pictures		
12. Does not follow rules for recording responses		
13. Other(s) - please specify		

SEQUENCE

Read all five of the sentences below. These sentences will tell a story when they are placed in the right order. Write the number "1" before the sentence that should come first. Write the number "2" before the sentence that should come next, and so on. Continue until you have completed the story

A NIGHT FIRE

31. _____ My father phoned the fire department, then gave Mother our rope ladder.

32. _____ At 3 A.M. yesterday morning, our dog started barking and Father smelled smoke.

33. _____ Mother threw our rope ladder out the window.

34. _____ As we reached the ground, we heard the fire engines racing to our home.

35. _____ My sister and I climbed down.

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TEST ADMINISTRATION MONITORING CHECKLIST

Date _____

City/State _____

Test Administrator _____

Observer _____

Child's First Name _____ Sex _____ Age _____

Introduction/Establishing Rapport (Check one)

_____ no attempt to establish rapport with child or household member present.

_____ little attempt to establish rapport with child or household member present.

_____ spends some time establishing rapport with child or household member present.

_____ spends too much time establishing rapport with child or household member present.

During the testing

a. Use frequency counts	Oral	Written
1. Misreads test instructions - minor errors		
2. Misreads test instructions - major errors		
3. Rewords or paraphrases test instructions		
4. Define words for child		
5. Reads written items for child		
6. Helps or prompts child (when no prompting is allowed)		
7. Translates test items or instructions for child		
8. Speaks to child in language other than English during the testing		
9. Gives tests in incorrect sequence		
10. Omits items		

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	Oral	Written
11. Does not adhere to rule for length of exposure to words or pictures		
12. Does not follow rules for recording responses		
13. Other(s) - please specify		

b. Control of testing situation (Check One)

_____ has no control of testing session (many interruptions, child gets up for breaks, bathroom frequently, etc.)

_____ has little control of session (allows child to get up more than once, is interrupted by household members more than once.)

_____ maintains good control of session (gives child a break when appropriate. Does not allow household members to interrupt session.)

_____ too controlling/rigid during the session (doesn't allow child to take one break when requested)

c. Giving information to child (Check One)

_____ during testing encourages child but does not tell whether answers are right or wrong

_____ during testing encourages child, and sometimes tells whether answers are right or wrong

_____ during the test encourages child and frequently tells whether answers are right or wrong

_____ other (please specify) _____

Test Setting

a. Where in the home does testing take place?

b. Other than child and tester, who was present?

c. Was the test setting (the area in the home where the test was administered) quiet? (Check One)

_____ yes, very quiet

_____ no, not quiet many distracting noises

_____ somewhat quiet, a few distracting noises

Finishing testing

Check ail appropriate:

_____ thanks child

_____ reassures child no one will know test results

_____ thanks household member(s) present

_____ reassures household member (s) present that no one will know test results

_____ does not tell parent or child how many items the child completed correctly

5. Discontinuation of Test (Check One)

_____ test should have been discontinued but was not.

_____ test was appropriately discontinued.

COMMENTS:

APPENDIX E

PROCEDURES FOR CALCULATING NON-RESPONSE AND SUBSAMPLING WEIGHT ADJUSTMENTS AND COEFFICIENTS OF VARIATION

WESTAT PROCEDURE FOR ESTIMATING TOTALS AND PROPORTIONS

The following paper was provided by Westat to RDI for use in calculating estimates of totals and proportions. It may also be found in the Westat Field Report.

3.4.1 Estimation of Totals and Proportions

The following notation was used to estimate the totals and proportions:

- h denotes the stratum; h = 1, 2, 3, 4;
- i denotes the county in stratum h;
- j denotes the segment in county i;
- m denotes the housing unit in segment j;
- n denotes the child in housing unit m;
- r_{hij} is the number of adjusted listings (= listings -vacancies/not DU's) of housing units in segment j;
- r'_{hij} is the number of screened housing units adjusted for neighbor information minus vacancies/not DU's in segment j;
- s_{hij} is the number of eligible housing units adjusted for neighbor information in segment j;
- s'_{hij} is the number of housing units in segment j for which household questionnaires were completed;
- c_{hijm} is the number of children in the age group 5-14 in household m, segment j;
- c'_{hijm} is the number of sampled children in the age group 5-14 in household m, segment j;
- c''_{hijm} is the number of sampled children in the age group 5-14 in household m, segment j, for whom LAI questionnaires were completed; and
- $w'_{hij} = w'_{hijm}$ is the weight for household m, in segment j, county i, stratum h.

The estimation procedure was divided into two parts as follows: (a) estimation of totals and proportions of household characteristics; and (b) estimation of totals and proportion of child characteristics in the age group 5-14.

A. Estimation of Totals and Proportions of Household Characteristics

1. Screened Households:

(a) Enter w'_{hij} for each household.

(b) For making nonresponse adjustments, group the sample counties in each of the four major strata (California, Texas, New York, and remainder of the United States) into the following four nonresponse adjustment groups:

(1) Segments with density codes 1-4 in certainty counties;
(2) Segments with density codes 5-8 in certainty counties;
(3) Segments with density codes 1-4 in noncertainty counties; and
(4) Segments with density codes 5-8 in noncertainty counties.

(c) For each of the above groups prepare two sets of estimates:

(1) $\hat{L}_{hs} = \sum_{i,j} w'_{hij} r_{hij}$ $\quad s = 1,2,3,4$

summed over all the segments in county i in stratum h. This is the weighted total of adjusted listings (listings - vacancies/ not DU's)

(2) $\hat{L}'_{hs} = \sum_{i,j} w'_{hij} r'_{hij}$

where the summation extends over all the segments in county j, in stratum h. This is the weighted total of the completed screenings adjusted for neighbor information minus vacancies and not DU's.

(d) For each of the four major strata, compute the adjusted weight for each household in segment j, county i.

$$w^{(1)}_{hij} = \frac{\hat{L}_{hs}}{L'_{hs}} w'_{hij}$$

(e) Use the adjusted weight for each completed screened household to obtain the totals and proportions of completed screened household characteristics.

2. Eligible Households

(a) Enter $w^{(1)}_{hij}$ for each household

(b) For making nonresponse adjustments, define the nonresponse adjustment groups as in A(1)(b). Prepare two sets of estimates for each of the nonresponse adjustment groups in stratum h.

$$\hat{M}_{hs} = \sum_{i,j} w^{(1)}_{hij} s_{hij}$$

summed over all segments in county i, stratum h. This is the weighted total of eligible households adjusted for neighbor information.

$$\hat{M}'_{hs} = \sum_{i,j} w^{(1)}_{hij} s'_{hij}$$

where the summation extends over the segments in county i, stratum h. This is the weighted total of the eligible households for which household questionnaires were completed.

(c) For each of the four major strata, compute the adjusted weight for household in segment j, county i,

$$w^{(2)}_{hij} = \frac{\hat{M}_{hs}}{M'_{hs}} w^{(1)}_{hij}$$

(d) Use the adjusted weight for each household to obtain the totals of NELB children possessing characteristics of interest. The estimate is of the form

$$\hat{X}_h = \sum_{ijmn} w_{hij}^{(2)} x_{hijmn}$$

For dichotomous characteristics, $x_{hijmn} = 1$, if the n^{th} child in household m possesses the characteristics of interest, otherwise = 0. For example, when interested in finding the number of NELB children in the age group 5-14, $x_{hijmn} = 1$ if the n^{th} child in household m is the age group 5-14, otherwise = 0. For calculating the proportion of Spanish children in the age group 15-18, we define $x_{hijmn} = 1$, if the n^{th} child in household m is in the age group 15-18, and 0 otherwise; $y_{hijmn} = 1$, if the n^{th} child in household m is Spanish and in the age group 15-18, and 0 otherwise. So the estimate of the total number of Spanish children in the age group 15-18 is of the form

$$\hat{y}_h = \sum_{ijmn} w_{hij}^{(2)} y_{hijmn} \quad \text{and}$$

$\frac{\hat{y}_h}{\hat{x}_h}$ provides the estimate of the proportion.

B. Estimation of Totals and Proportions of Child Characteristics in the Age Group 5-14

(a) Enter $w_{hij}^{(2)}$ for each child.

(b) Since the children were subsampled, the adjustment due to subsampling was made as:

$$Q'_{hijm} = \frac{c_{hijm}}{c'_{hijm}} w_{hij}^{(2)}.$$

(c) For making the nonresponse adjustment, define the nonresponse adjustment groups as in A(1) (b). Prepare two sets of estimates for each of the nonresponse adjustment groups in stratum h.

(1) $$\hat{N}_{hs} = \sum_{i,j,m} Q'_{hijm} c'_{hijm}$$

Summed over all households in segment j, county i, stratum h. This is the weighted total of sample children in the age group 5-14 in stratum h.

(2) $$\hat{N}'_{hs} = \sum_{i,j,m} Q'_{hijm} c''_{hijm}$$

Summation extends over all the households in segment j, county i, stratum h. This is the weighted total of all the sample children for whom LAI questionnaires were completed.

(d) For each of the four strata, compute an adjusted weight for each child:

$$Q_{hijm} = \frac{\hat{N}_{hs}}{\hat{N}'_{hs}} Q'_{hijm}$$

(e) Use the adjusted weight for each sample child in the age group 5-14 to obtain the totals of children possessing characteristics of interest. The estimate is of the form

$$\hat{X}_h = \sum_{ijmn} Q_{hijm} x_{hijmn}$$

For dichotomous characteristics $x_{hijmn} = 1$ if the n^{th} sampled child in the age group 5-14 possesses the characteristics of interest, otherwise 0. When interested in finding the proportion of LESA in the age group 7-9, $x_{hijmn} = 1$, if the n^{th} child is in the age group 7-9, and 0 otherwise; $y_{hijmn} = 1$ if the child is LESA and is in the age group 7-9, and 0 otherwise. So the estimate of the total number of LESA children in the age group 7-9 is of the form

$$\hat{Y}_h = \sum_{ijmn} Q_{hijm} y_{hijmn} \quad \text{and}$$

$\frac{\hat{Y}_h}{\hat{X}_h}$ provides the estimate of the proportions.

C. Estimation of Totals and Proportions of Child Characteristics in the Age Group 15-18

Since presently we do not intend to use pupil survey data, there is no need for developing a new child weight for children in the age group 15-18. The weight developed for an eligible household will be appended to each child's (15-18) record for estimating totals

and characteristics in the age group 15-18, as explained in A(2)(d).

If it were to be decided to use pupil survey data, procedures must be written to develop a new weight reflecting subsampling and nonresponse adjustments pertinent to that part of the survey.

D. Procedures for Adjusting Weights for Age and Sex Distribution

After looking at the tabulation by age and sex, should it be decided to adjust the weights, we would proceed as follows:

(1) Tabulate both weighted and unweighted NELB data, separately for Spanish and other NELB, for California, Texas, New York, remainder of U.S., and total U.S. combined (separately -- 10 tables in all) using the following as a guide:

Age	Male	Female	Total
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
Subtotal			
15			
16			
17			
18			
Subtotal			
Grandtotal			

(2) We would examine the data and decide on the age groups to be collapsed for age and sex adjustment.

(3) The Census SIE made estimates of the number of NELB children in 1976 in the age range 5-14 years. Since 1976 there has been some decline in the number of children in that age range. Estimated only on the basis of decline in live births, the downward adjustment is about 4.4 percent. Thus, the estimates of total NELB children, as estimated by SIE and adjusted to 1978, are as follows:

	1976 SIE (in 000s)	Adjusted to 1978 ((in 000s)
California	889	850
Texas	659	630
New York	663	634
Remainder of U.S.	1,741	1,664
TOTAL	3,952	3,778

6.6.2. Non-response and Subsampling Weight Adjustments

The following adjustment ratios were produced as a result of applying the Westat procedures to the CESS sample.

Screener Non-Response Adjustment Ratios

Subpopulation	Low Density		High Density	
	SMSA	NonSMSA	SMSA	NonSMSA
California	1.2599	1.3125	1.3756	1.1830
Texas	1.2117	1.3391	1.2379	1.0077
New York	1.3301	1.3301	1.4107	1.4107
Remainder of U.S.	1.3470	1.1632	1.3068	1.3046

Household Questionnaire Non-Response Adjustment Ratios

Subpopulation	Low Density		High Density	
	SMSA	NonSMSA	SMSA	NonSMSA
California	1.1268	1.0000	1.1039	1.0780
Texas	1.1295	1.0000	1.0566	1.0000
New York	1.1153	1.1153	1.0661	1.0661
Remainder of U.S.	1.0306	1.0000	1.0784	1.0060

UM&AI Non-Response Adjustment Ratios

Subpopulation	Low Density		High Density	
	SMSA	NonSMSA	SMSA	NonSMSA
California	1.7103	1.6667	1.2571	2.4821
Texas	1.5213	1.0769	1.1602	1.2730
New York	1.2272	1.2272	1.1549	1.1549
Remainder of U.S.	1.2585	1.1605	1.0607	1.1843

Correction Factors for Correcting Age and Sex Distribution

Subpopulation	Age							
	5-8		9-11		12-14		15-18	
	M	F	M	F	M	F	M	F
Spanish								
California	1.6803	1.5512	1.3596	1.3494	1.4143	2.0216	1.5447	2.6218
Texas	0.7065	1.0700	1.1405	0.7459	1.3213	0.9380	1.5467	1.7046
New York	1.0063	1.0821	0.6051	2.5248	0.6162	0.8918	1.1003	0.8837
Remainder of U.S.	1.3625	1.2409	1.3655	0.8718	1.4382	1.3022	0.7762	1.2450
Other Non-English								
California	2.6157	0.9620	2.6157	0.9620	2.6157	0.9620	2.6157	0.9620
Texas	56.8603	2.5037	56.8603	2.5037	56.8603	2.5037	56.8603	2.5037
New York	1.0453	1.8235	2.0154	0.8547	1.4346	1.1024	1.4978	2.2672
Remainder of U.S.	2.1990	1.0560	1.3932	1.4208	1.9126	1.0910	2.4247	1.7383

6.6.3. Distribution of CESS Sample by Age, Sex, Language, and Subpopulation

The following tables show the distribution of cases prior to the final weight adjustment to the SIE sample.

POPULATION: WHOLE U.S. (Weighted) 10/15/78

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	86,991	8.8	92,746	8.8	32,718	8.1	50,541	8.4	
6	114,883	11.6	99,905	9.5	52,477	13.0	42,415	7.0	
7	125,066	12.6	103,816	9.9	42,110	10.4	117,588	19.5	
8	92,944	9.4	101,545	9.7	16,527	4.1	48,510	8.0	
9	119,221	12.0	112,192	10.7	12,452	3.1	40,154	6.7	
10	89,506	9.0	127,847	12.2	36,374	9.0	47,532	7.9	
11	78,945	8.0	85,312	8.1	87,704	21.7	71,829	11.9	
12	78,501	7.9	98,926	9.4	41,104	10.2	76,784	12.7	
13	73,998	7.5	96,475	9.2	35,350	8.8	46,916	7.8	
14	131,949	13.3	130,495	12.4	46,663	11.6	61,439	10.2	
Subtotal	992,004	48.6*	1,049,259	51.4*	403,479	40.1*	603,708	59.9*	3,048,450
15	135,680	36.2	87,158	28.3	27,527	18.1	68,063	33.8	
16	84,494	22.5	87,293	28.4	51,769	34.0	71,477	35.5	
17	110,732	29.5	92,505	30.1	28,480	18.7	44,412	22.1	
18	44,387	11.8	40,699	13.2	44,673	29.3	17,241	8.6	
Subtotal	375,293	55.0*	307,655	45.0*	152,449	43.1*	201,193	56.9*	1,036,590
Total	1,367,297		1,356,914		555,928		804,901		4,085,040

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: WHOLE UNITED STATES (Unweighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	65	9.0	73	9.6	15	7.5	23	10.1	
6	85	11.8	81	10.6	28	14.1	19	8.3	
7	78	10.8	82	10.8	24	12.1	23	10.1	
8	71	9.9	89	11.7	15	7.5	26	11.4	
9	79	11.0	79	10.4	14	7.0	23	10.1	
10	68	9.4	77	10.1	19	9.5	20	8.8	
11	64	8.9	63	8.3	24	12.1	32	14.0	
12	66	9.2	74	9.7	17	8.5	20	8.8	
13	65	9.0	65	8.5	22	11.1	23	10.1	
14	79	11.0	79	10.4	21	10.6	19	8.3	
Subtotal	720	48.6*	762	51.4*	199	46.6*	228	53.4*	1,909
15	88	35.2	89	35.3	20	23.8	29	28.4	
16	81	32.4	71	28.2	30	35.7	28	27.5	
17	49	19.6	65	25.8	18	21.4	32	31.4	
18	32	12.8	27	10.7	16	19.0	13	12.7	
Subtotal	250	49.8*	252	50.2*	84	45.2*	102	54.8*	688
Total	970		1,014		283		330		2,597

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: CALIFORNIA (Weighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	19,040	10.4	24,343	11.0	0	0	28,080	24.4	
6	18,722	10.2	24,817	11.2	3,158	9.1	4,215	3.7	
7	20,492	11.2	16,434	7.4	0	0	7,813	6.8	
8	18,538	10.1	23,660	10.7	1,318	3.8	25,049	21.8	
9	22,687	12.4	20,724	9.3	0	0	0	0	
10	16,091	8.8	18,114	8.2	13,299	38.5	8,306	7.2	
11	17,764	9.7	33,798	15.2	826	2.4	12,754	11.1	
12	13,680	7.4	21,827	9.8	9,202	26.7	19,198	16.7	
13	12,497	6.8	11,528	5.2	5,665	16.4	8,141	7.1	
14	24,184	13.2	26,871	12.1	1,054	3.1	1,593	1.4	
Subtotal	183,695	45.3*	222,116	54.7*	34,522	23.1*	115,149	76.9*	555,482
15	19,964	33.2	21,287	38.6	6,068	27.4	8,099	21.8	
16	21,755	36.2	14,184	25.7	7,745	35.0	19,756	53.1	
17	13,992	23.3	12.968	23.5	7,182	32.5	9,328	25.1	
18	4,441	7.4	6,684	12.1	1,130	5.1	0	0	
Subtotal	60,152	52.2*	55,123	47.8 *	22,125	37.3*	37,183	62.7*	174,583
Total	243,847		277,239		56,647		152,332		730,065

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: CALIFORNIA (Unweighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	11	8.0	18	12.9	0	0	6	27.3	
6	18	13.1	12	8.6	1	8.3	1	4.5	
7	13	9.5	14	10.1	0	0	2	9.1	
8	17	12.4	16	11.5	1	8.3	4	18.2	
9	17	12.4	16	11.5	0	0	0	0	
10	14	10.2	10	7.2	3	25.0	2	9.1	
11	10	7.3	15	10.8	2	16.7	3	13.6	
12	12	8.8	15	10.8	2	16.7	2	9.1	
13	10	7.3	8	5.8	2	16.7	1	4.5	
14	15	10.9	15	10.8	1	8.3	1	4.5	
Subtotal	137	49.6*	139	50.4*	12	35.3*	22	64.7*	310
15	18	34.0	18	36.0	2	28.6	3	37.5	
16	21	39.6	13	26.5	2	28.6	2	25.0	
17	10	18.9	12	24.0	2	28.6	3	37.5	
18	4	7.5	7	14.0	1	14.3	0	0	
Subtotal	53	51.5*	50	48.5*	7	46.7*	8	53.3*	118
Total	90		189		19		30		428

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: TEXAS (Weighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	35,938	11.3	24,143	7.5	0	0	0	0	
6	37,340	11.7	29,021	9.0	0	0	0	0	
7	61,652	19.3	39,053	12.2	0	0	0	0	
8	33,884	10.6	25,506	7.9	0	0	0	0	
9	17,918	5.6	23,430	7.3	0	0	237	50.0	
10	41,856	13.1	53,220	16.6	0	0	0	0	
11	26,510	8.3	24,629	7.7	0	0	0	0	
12	22,295	7.0	27,336	8.5	237	50.0	0	0	
13	18,019	5.6	26,422	8.2	0	0	237	50.0	
14	23,609	7.4	48,521	15.1	237	50.0	0	0	
Subtotal	319,021	49.8*	321,281	50.2*	474	50.0*	474	50.0*	641,250
15	24,007	30.8	20,712	32.7	156	100.0	2,807	22.8	
16	27,863	35.8	16,755	26.4	0	0	6,216	50.5	
17	14,407	18.5	18,931	29.8	0	0	156	1.3	
18	11,614	14.9	7,029	11.1	0	0	3,137	25.5	
Subtotal	77,891	55.1*	63,427	44.9*	156	1.1*	12,316	98.7*	153,790
Total	396,912		384,708		630		12,790		795,040

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: TEXAS (Unweighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	24	10.7	18	7.8	0	0	0	0	
6	30	13.4	28	12.1	0	0	0	0	
7	31	13.8	27	11.6	0	0	0	0	
8	22	9.8	21	9.1	0	0	0	0	
9	21	9.4	20	8.6	0	0	1	50.0	
10	20	8.9	27	11.6	0	0	0	0	
11	18	8.0	21	9.1	0	0	0	0	
12	17	7.6	21	9.1	1	50.0	0	0	
13	23	10.3	22	9.5	0	0	1	50.0	
14	18	8.0	27	11.6	1	50.0	0	0	
Subtotal	224	49.1*	232	50.9*	2	50.0*	2	50.0*	460
15	25	32.1	24	30.4	1	100.0	1	20.0	
16	26	33.3	21	26.6	0	0	2	40.0	
17	14	17.9	24	30.4	0	0	1	20.0	
18	13	16.7	10	12.7	0	0	1	20.0	
Subtotal	78	49.7*	79	50.3*	1	16.7*	5	83.3*	163
Total	302		311		3		7		623

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: NEW YORK (Weighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	4,678	2.3	8,809	5.2	16,848	19.4	10,632	9.8	
6	31,519	15.3	18,621	10.9	17,029	19.6	3,377	3.1	
7	16,543	8.0	21,390	12.5	16,800	19.3	15,401	14.2	
8	10,527	5.1	24,958	14.6	0	0	0	0	
9	28,770	14.0	11,125	6.5	0	0	10,370	9.6	
10	17,631	8.6	13,440	7.9	3,905	4.5	11,772	10.9	
11	13,685	6.7	4,516	2.6	14,189	16.3	25,303	23.4	
12	16,948	8.2	28,801	16.9	3,905	4.5	9.774	9.0	
13	30,056	14.6	8,012	4.7	2,677	3.1	9,445	8.7	
14	35,398	17.2	30,933	18.1	11,614	13.4	12,042	11.1	
Subtotal	205,756	54.7*	170,605	45.3*	86,967	44.6*	108,116	55.4*	571,443
15	11,580	26.2	18,666	28.8	10,667	36.5	13,137	44.1	
16	12,078	27.4	13,171	20.3	9,620	33.0	0	0	
17	11,232	25.5	25,042	38.6	5,874	20.1	12,203	41.0	
18	9,241	20.9	7,914	12.2	3,032	10.4	4,431	14.9	
Subtotal	44,131	40.5*	64,793	59.5*	29,193	49.5*	29,771	50.5*	167,888
Total	249,886		235,398		116,160		137,887		739,331

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: NEW YORK (Unweighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	6	5.0	9	8.6	5	19.2	4	14.8	
6	11	9.1	10	9.5	6	23.1	1	3.7	
7	9	7.4	10	9.5	4	15.4	4	14.8	
8	9	7.4	18	17.1	0	0	0	0	
9	15	12.4	11	10.5	0	0	3	11.1	
10	17	14.0	10	9.5	1	3.8	3	11.1	
11	10	8.3	4	3.8	4	15.4	6	22.2	
12	11	9.1	14	13.3	1	3.8	2	7.4	
13	15	12.4	5	4.8	2	7.7	2	7.4	
14	18	14.9	14	13.3	3	11.5	2	7.4	
Subtotal	121	53.5*	105	46.5*	26	49.1*	27	50.9*	279
15	10	34.5	15	44.1	5	41.7	2	28.6	
16	9	31.0	10	29.4	4	33.3	0	0	
17	5	17.2	5	14.7	2	16.7	4	57.1	
18	5	17.2	4	11.8	1	8.3	1	14.3	
Subtotal	29	46.0*	34	54.0*	12	63.2*	7	36.8*	82
Total	50		139		38		34		361

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: BALANCE (Weighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	27,335	9.6	35,451	10.6	15,870	5.6	11,830	3.1	
6	27,302	9.6	27,447	8.2	32,291	11.5	34,824	9.2	
7	26,378	9.3	26,940	8.0	25,310	9.0	94,375	24.8	
8	29,995	10.6	27,421	8.2	15,209	5.4	23,461	6.2	
9	49,846	17.6	56,913	17.0	12,452	4.4	29,546	7.8	
10	13,929	4.9	43,074	12.8	19,171	6.8	27,454	7.2	
11	20,986	7.4	22,368	6.7	72,688	25.8	33,772	8.9	
12	25,578	9.0	20,962	6.3	27,760	9.9	47,811	12.6	
13	13,426	4.7	50,513	15.1	27,009	9.6	29,093	7.7	
14	48,757	17.2	24,170	7.2	33,757	12.0	47,804	12.6	
Subtotal	283,533	45.8*	335,258	54.2*	281,516	42.6*	379,969	57.4	1,280,276
15	80,129	41.5	26,493	21.3	10,637	10.5	44,020	36.1	
16	22,799	11.8	43,183	34.7	34,405	34.1	45,505	37.3	
17	71,101	36.8	35,564	28.6	15,424	15.3	22,724	18.6	
18	19,091	9.9	19,072	15.3	40,511	40.1	9,673	7.9	
Subtotal	193,120	60.8*	124,312	39.2*	100,976	45.3*	121,922	54.7*	540,330
Total	476,653		459,570		382,492		501,891		1,820,606

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

POPULATION: BALANCE (Unweighted)

Language	Spanish				Other				Total
Sex	M		F		M		F		
	#	%	#	%	#	%	#	%	
Age 5	24	10.1	28	9.8	10	6.3	13	7.3	
6	26	10.9	31	10.8	21	13.2	17	9.6	
7	25	10.5	31	10.8	20	12.6	17	9.6	
8	23	9.7	34	11.9	14	8.8	22	12.4	
9	26	10.9	32	11.2	14	8.8	19	10.7	
10	17	7.1	30	10.5	15	9.4	15	8.5	
11	26	10.9	23	8.0	18	11.3	23	13.0	
12	26	10.9	24	8.4	13	8.2	16	9.0	
13	17	7.1	30	10.5	18	11.3	19	10.7	
14	28	11.8	23	8.0	16	10.1	16	9.0	
Subtotal	238	45.4*	286	54.6*	159	47.3*	177	52.7*	860
15	35	38.9	32	36.0	12	18.8	23	28.0	
16	25	27.8	27	30.3	24	37.5	24	29.3	
17	20	22.2	24	27.0	14	21.9	24	29.3	
18	10	11.1	6	6.7	14	21.9	11	13.4	
Subtotal	90	50.3*	89	49.7*	64	43.8*	82	56.2*	325
Total	328		375		223		259		1,185

* These percentages are not the sum of the column percentages, which sum to 100.0%, but are the percents of the total males and females by language group.

The following paper was provided by Westat to RDI to follow in calculating estimates of variance. It may also be found in the Westat Field Report.

3.4.2 Estimation of Variance

For variance estimation, Westat divided the certainty counties within each group in a stratum into two parts. One part consisted of segments listed at odd numbers and the second part consisted of segments listed at even numbers. These parts are called odd and even segments within a certainty county. The non-certainty counties within a density class are grouped together. The certainty and noncertainty county groupings within each of the four strata are shown in Table 3-7.

The following notation was used to estimate the variance:

h	denotes the stratum; h = 1, 2, 3, 4;
i	denotes the group;
j	denotes the county; (for a certainty county, j=1,2 odd and even)
k	denotes the segment;
m	denotes the household;
n	denotes the child;
B_{hijkm}	is the number of sampled children in household m, segment k, county j, group i, stratum h.
B_{hijk}	is the number of sampled households in segment k, county j, group i, stratum h;
M_{nij}	is the number of sampled segments in county j, group i, stratum h;
N_{hi}	is the number of sampled counties in group i, stratum h
D_h	is the number of groups in stratum h;

$W^{(1)}_{hijk}$	is the adjusted weight associated with screened household m, in segment k, county j, group i, stratum h;
$W^{(2)}_{hijk}$	is the adjusted weight associated with eligible household m, in segment k, county j, group i, stratum h;
Q_{hijkm}	is the adjusted weight associated with sample child n in the age group 5-14 in household m, segment k, county j, group i and stratum h;
X_{hijkm} or Y_{hijkm}	is the value of some specified characteristic of household m, in segment k, county j, group i, stratum h;
X_{hijkmn} or Y_{hijkmn}	is the value of some specified characteristics of child n in household m, segment k, county j, group i, stratum h.

For example, when interested in calculating the variance of the proportion of LESA children in the age group (6-10), we assigned $X_{hijkmn} = 1$ if the n^{th} child is in the age group (6-10), and 0 if not. We assigned $Y_{hijkmn} = 1$ if the n^{th} child is LESA and was in the age group (6-10), and 0 if not.

Table 3-7. Scheme of grouping the counties in the four strata

	Group number	County code	Nature of county
California	1	13,202	Certainty
	2	13,204	Certainty
	3	14,205	Certainty
	4	14,206	Certainty
	5	14,207	Certainty
	6	16,215	Certainty
	7	13,201	Noncertainty
		13,209	Noncertainty
		13,211	Noncertainty
		13,212	Noncertainty
	8	14,208	Noncertainty
		14,214	Noncertainty
Texas	1	23,107	Certainty
	2	26,112	Certainty
	3	27,115	Certainty
	4	23,104	Noncertainty
		23,108	Noncertainty
	5	24,109	Noncertainty
		25,111	Noncertainty
	6	28,116	Noncertainty
		28,118	Noncertainty
		28,120	Noncertainty

Table 3-7. Scheme of grouping the counties in the four strata (continued)

	Group number	County code	Nature of county
New York	1	34,674	Certainty
	2	34,675	Certainty
	3	35,676	Certainty
	4	35,677	Certainty
	5	32,680	Noncertainty
		33,672	Noncertainty
		33,673	Noncertainty
		33,678	Noncertainty
		33,681	Noncertainty
Remainder of U.S.	1	43,448	Certainty
	2	43,514	Certainty
	3	43,518	Certainty
	4	43,725	Certainty
	5	43,728	Certainty
	6	44,138	Certainty
	7	44,270	Certainty
	8	44,512	Certainty
	9	44,513	Certainty
	10	44,521	Certainty
	11	45,265	Certainty
	12	41,129	Noncertainty
		41,134	Noncertainty
		41,135	Noncertainty
		41,144	Noncertainty
		41,722	Noncertainty
	13	42,140	Noncertainty
		42,146	Noncertainty
		42,149	Noncertainty
		42,153	Noncertainty
		42,154	Noncertainty
		42,157	Noncertainty
		42,160	Noncertainty

Table 3-7. Scheme of grouping the counties in the four strata (continued)

Group number	County code	Nature of county
14	42,237	Noncertainty
	42,515	Noncertainty
	42,723	Noncertainty
15	43,143	Noncertainty
	43,155	Noncertainty
16	43,201	Noncertainty
	43,262	Noncertainty
	43,269	Noncertainty
17	43,304	Noncertainty
	43,306	Noncertainty
18	43,507	Noncertainty
	43,508	Noncertainty
	43,510	Noncertainty
	43,517	Noncertainty
	43,520	Noncertainty
	43,726	Noncertainty
19	44,236	Noncertainty
	44,264	Noncertainty
20	45,268	Noncertainty
	46,267	Noncertainty
	47,266	Noncertainty

(1) For eligible household characteristics

$$X'_{hijkm} = W^{(2)}_{hijk} X_{hijkm}$$

$$X'_{hijk} = \sum_{m}^{B_{hijk}} X'_{hijkm}$$

$$X'_{hij} = \sum_{k}^{M_{hij}} X'_{hijk}$$

$$\bar{X}'_{hi} = \frac{1}{N_{hi}} \sum_{j=1}^{N_{hi}} X'_{hij}$$

$$X'_{h} = \sum_{i=1}^{D_h} \sum_{j-1}^{N_{hi}} X'_{hij}$$

$$X' = \sum_{h=1}^{4} X'_{h}$$

Other characteristics are similarly defined.

(2) For screened household characteristics:

Substitute $W^{(1)}_{hijk}$ for $W^{(2)}_{hijk}$ in (1).

(3) For a sample child in the age group (5-14):

$$X'_{hijkmn} = Q_{hijkm} X_{hijkmn}$$

$$X'_{hijkm} = \sum_{n=1}^{h_{hijkm}} X'_{hijkmn}$$

$$X'_{hijk} = \sum_{m=1}^{b_{hijk}} X'_{hijkm}$$

$$X'_{hij} = \sum_{k}^{m_{hij}} X'_{hijk}$$

$$\bar{X}'_{hi} = \frac{1}{n_{hi}} \sum_{j=1}^{n_{hi}} X_{hij}$$

$$X'_{h} = \sum_{i=1}^{D_h} \sum_{j=1}^{n_{hi}} X'_{hij}$$

$$X = \sum_{h=1}^{4} X'_{h}$$

Other characteristics are similarly defined.

Approximate Variance for Totals

Variances for noncertainty and certainty counties were determined separately.

Non-certainty Counties (Stratum h)

$$\hat{\sigma}^2_{X'_h\,(nc)} = \sum_{i=1}^{D_{hn}} \frac{n_{hi}}{n_{hi}-1} \sum_{j=1}^{n_{hi}} (X'_{hij} - \bar{X}'_{hi})^2$$

where D_{hn} denotes the number of groups of non-certainty counties in stratum h.

Certainty County

Let

n_{hi1} denote the number of segments in the odd certainty county of the ith certainty PSU in stratum h,

n_{hi2} denotes the number of segments in the even certainty county in the ith certainty PSU in stratum h,

$D_{h(c)}$ denotes the number of certainty counties in stratum h,

then the contribution to variance from certainty counties will be

$$\hat{\sigma}^2_{x'_{h(c)}} \doteq \sum_{i=1}^{D_{h(c)}} \frac{n_{hi}^2}{n_{hi1}\, n_{hi2}} \left(\frac{n_{hi2}\, X'_{hi1} - n_{hi1}\, X'_{hi2}}{n_{hi1} + n_{hi2}} \right)^2$$

(a) Variance at Stratum Level

So, variance of the total (X'_h) for the stratum h will be

$$\hat{\sigma}^2_{X'_h} \doteq \hat{\sigma}^2_{X'_{h(nc)}} + \hat{\sigma}^2_{X'_{h(c)}}$$

The estimated relvariance of X'_h is

$$\hat{V}^2_{X'_h} \doteq \frac{\hat{\sigma}^2_{X'_h}}{X'^2_h}$$

(b) Variance at National Level

Estimated Variance for the National Totals (X)

$$\hat{\sigma}^2_{\hat{X}} = \sum_{h=1}^{4} \hat{\sigma}^2_{X'_h}$$

Estimated relvariance is given by

$$\hat{V}^2_{\hat{X}} = \frac{\hat{\sigma}^2_{\hat{X}}}{\hat{X}^2}$$

Relvariance of Proportions

(a) At stratum level

$$\hat{V}^2_{\frac{Y'_h}{X'_h}} = \hat{V}^2_{Y'_h} + \hat{V}^2_{X'_h} - 2\,\hat{V}_{X'_h Y'_h}$$

where

$$\hat{V}^2_{Y'_h} = \frac{\hat{\sigma}^2_{Y'_h}}{\bar{Y}'^2_h}$$

$$\hat{V}^2_{X'_h} = \frac{\hat{\sigma}^2_{X'_h}}{\bar{X}'^2_h}$$

$$\hat{V}_{X'_h Y'_h} = \frac{\hat{\sigma}_{X'_h Y'_h}}{\bar{X}'_h \bar{Y}'_h}$$

To calculate $\hat{\sigma}_{X'_h Y'_h}$ proceed as follows:

(i) Non certainty counties

$$\hat{\sigma}_{X'_h Y'_{h(nc)}} = \sum_{i=1}^{D_{h_n}} \frac{n_{hi}}{n_{hi}-1} \sum_{i=1}^{n_{h_i}} \left(x'_{hij}-\bar{x}'_{hi}\right)\left(y'_{hij}-\bar{y}'_{hi}\right.$$

(ii) Certainty counties

$$\hat{\sigma}_{X'_h Y'_{h(c)}} = \sum_{c=1}^{D_{h(c)}} 4\left[\left(\frac{n_{hi2}x'_{hi1}-n_{hi1}x'_{hi2}}{n_{hi1}+n_{hi2}}\right)\left(\frac{n_{hi2}y'_{hi1}-n_{hi1}x'_{hi2}}{n_{hi1}+n_{hi2}}\right)\right]$$

$$\hat{\sigma}_{X'_h Y'_h} = \hat{\sigma}_{X'_h Y'_{h(nc)}} + \hat{\sigma}_{X'_h Y'_{h(c)}}$$

(b) National Level

$$\hat{V}^2_{\frac{\hat{Y}}{\hat{X}}} = \hat{V}^2_{\hat{Y}} + \hat{V}^2_{\hat{X}} - 2\hat{V}_{\hat{X}\hat{Y}}$$

where

$$\hat{V}^2_{\hat{Y}} = \frac{\hat{\sigma}^2_{\hat{Y}}}{\hat{Y}^2} = \frac{\sum_{h=1}^{4} \hat{\sigma}^2_{Y'_h}}{\left(\sum_{h=1}^{4} Y'_h\right)^2}$$

$$\hat{V}^2_{\hat{X}} = \frac{\hat{\sigma}^2_{\hat{X}}}{\hat{X}^2} = \frac{\sum_{h}^{4} \hat{\sigma}^2_{X'_h}}{\left(\sum_{h=1}^{4} X'_h\right)^2}$$

$$\hat{V}_{\hat{X}\hat{Y}} = \frac{\hat{\sigma}_{\hat{X}\hat{Y}}}{\hat{X}\hat{Y}} = \frac{\sum_{h=1}^{4} \hat{\sigma}_{X'_h Y'_h}}{\left(\sum_{h=1}^{4} X'_h\right)\left(\sum_{h=1}^{4} Y'_h\right)}$$

APPENDIX F

CODES DEVELOPED FOR OPEN-ENDED SURVEY ITEMS

Household Screener Questionnaire
Open-Ended Item Codes

Codes were developed for open-ended items on the basis of comments written by the interviewer. Editors did not interpret or code written comments into provided categories. A new code was created for each unique response recorded.

Item No. or Description	Page No.	Added Codes	Code Definition
Year structure built	front	1	1970 or later
		2	Before 1970
		3	D.K., no idea, etc.
		4	Unoccupied, vacant
Usual language: S2, S3A, S5, S15, S17	1-2	19	Czechoslovakian
		20	Lithuanian
		21	English and Spanish *
		22	Dutch
		23	Sign Language
		24	Yugoslavian
		25	Hungarian
		26	Armenian
		27	Hebrew
		28	Persian
		29	Ukranian
		30	Turkish
		31	Albanian
		32	Hindi - Eastern Indian
		33	Arabic
		34	Maltese/Spanish
		35	Gujarati
		36	Igbo
		37	Macedonian
		38	Samoan
		39	Hawaiian
		40	Danish
		41	Urdu
		42	Farsi (Persian)
		43	Norguishiw - Norowish **
		44	American Indian
		45	Swiss
		46	(deleted)

* All of these combinations found on S2 and S3A items were recoded as either English or Spanish depending on which appeared forst on the survey.

* * All of the language codes were checked against the code list used by the Bureau of the Census. This language was not found on that list and may be an incorrect interviewer interpretation.

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Item No. or Description	Page No.	Added Codes	Code Definitions
		47	Romanian
		48	Flemish
		49	Togoto *
		50	Lebanese
		51	Cambodian
		52	Thai
		53	Aronion *
		54	Hindu
		55	Bengali
		56	Slavic
		57	Mandarin
		58	Assyrian
		59	Harti *
		60	Indonesian
		61	Apache
		62	Latin
		98	Don't know
Origin: S18	2	30	Lithuanian
		31	Czechoslovakian
		32	Hungarian
		33	Yugoslavian
		34	North European
		35	Sweden
		36	American (U.S.)
		37	Armenian
		38	Turkish
		39	Hawaiian
		40	India
		41	Yemen
		42	Israel
		43	Spanish
		44	Canadian
		45	Lebanese
		46	Tejano *
		47	Dutch
		48	Ukranian
		49	Austrian
		50	Latin American
		51	Nigerian
		52	Dominican Republic
		53	Greek Cypriot
		54	Macedonian
		55	Eurasian
		56	Argun
		57	Persian
		58	Chilean

* All of the origin codes were checked against the code list used by the Bureau of the Census. This language was not found on that list and may be an incorrect interviewer interpretation.

Item N. or Description	Page No.	Added Codes	Code Definition
		59	Indonesian
		60	Thai
		61	Rumanian
		62	Haitian
		63	Guatemalan
		64	Iraq
		65	Samoan
		66	Iran
		67	Uruguay
		68	Ecuador
Country of birth: S20			
		20	Panama
		21	Albania
		22	Ecuador
		23	Bolivia
		24	America
		25	Colombia
		26	Egypt
		27	Central America
		28	Dominican Republic
		29	Yugoslavia
		30	Costa Rica
		31	Spain
		32	India
		33	Yemen
		34	Israel
		35	Lativia
		36	South Africa
		37	El Salvador
		38	Peru
		39	Holland
		40	Hong Kong
		41	Venezuela
		42	Nigeria
		43	Honduras
		44	Cyprus
		45	New Guinea
		46	Austria
		47	Taiwan
		48	Turkey
		49	Iran
		50	Palestine
		51	Arabia
		52	Nicaragua
		53	Chile
		54	Syria
		55	Lebanon

Item No. or Description	Page No.	Added Codes	Code Definition
		56	Morocco
		57	Iraq
		58	Argentina
		59	South America
		60	Brazil
		61	Thailand
		62	Guatemala
		63	Czechoslovakia
		64	Rumania
		65	Haiti
		66	Hungary
		67	Samoa
		68	Indonesia
		69	Bulgaria
		70	Ukraine
		71	Uruguay
		72	Pakistan
Telephone location: S25	5	3	Friend, landlord, apartment manager
		4	Other relative
		5	Public phone
		6	Office phone
Type of structure: S26	5	7	Motel
		8	Garage Apartment
		9	Rooming-Boarding House
		10	Garden Apartment
		11	Apartment Complex
		12	Condominium
		13	(deleted)
		14	Mobil Home
		15	Hogan
Interpreter: S29	5	3	Neighbor
		4	Cousin, other relative
		5	Friend
Language of interview: S30	5	See codes used for Screener items S2 and S3A	

Household Questionnaire
Open-Ended Item Codes

Codes were developed for open-ended items on the basis of comments written by the interviewer. Editors did not interpret or code written comments into provided categories. A new code was created for each new response as recorded.

Item No. or Description	Page No.	Added Codes	Code Definition
Why child not in school: H5	3	8	Graduate
		9	Personal problems, married
		10	Cannot speak English
		11	Lives in Mexico
		12	Pregnant
Why child left school: H6	3	5	Pregnant
		6	(deleted)
		7	Problems with teachers
		8	Sick
		9	School too far
Highest grade attended: H7	3	23	Head Start program
		24	Special class, no grades
		25	Vocational instruction
Person's usual language: Box C	10	See codes used for Screener items S2 and S3A	
Language spoken to siblings: H23	11	See codes used for Screener items S2 and S3A	
to friends: H24	11	See codes used for Screener items S2 and S3A	
Who is teaching English: H26	13	5	Coach
		6	Lay person

Household Questionnaire
Open-Ended Item Codes (Cont.)

Item No. or Description	Page No.	Added Codes	Code Definition
Where is English taught: H27	13	5	Home
Instruction in non-English language: H29	15	See codes used for Screener items S2 and S3A	
Who is teaching English: H31	17	5	Coach
		6	Lay people
Where is English taught: H32	17	5	Home
Household income: H36	19	1	None
		2	Loss
		3	Less than $2,000
		4	$2 - 3,999
		5	$4 - 5,999
		6	$6 - 7,999
		7	$8 - 9,999
		8	$10 -11,999
		9	$12 -14,999
		10	$15 -19,999
		11	$20 -24,999
		12	$25,000 up
		13	Refused
		14	Don't know

6.8.3 Non-Interview Report Form Open-Ended Item Codes

Codes were developed for open-ended items on the basis of comments written by the interviewer. Editors did not interpret or code written comments into provided categories. A new code was created for each new response as recorded.

Item No. or Description	Page No.	Added Codes	Code Definition
Additional information:			
N3	6	1	Information given
		2	Information not given
N10	7	1	Information given
		2	Information not given
Language problem: N6	6	See codes used for Screener items S2 and S3A	
Type of structure: N12	7	See codes used for Screener item S26	

APPENDIX G

QUESTIONNAIRES

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